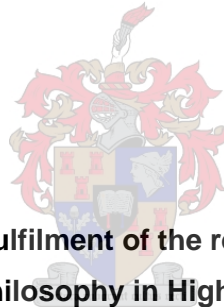


**ACADEMICS' CONCEPTIONS AND ORIENTATIONS OF
GRADUATE ATTRIBUTES IN APPLIED DESIGN PROGRAMMES
AT A UNIVERSITY OF TECHNOLOGY**

BY

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**Thesis presented in partial fulfilment of the requirements for the degree of
Master of Philosophy in Higher Education
in the Department of Curriculum Studies, Faculty of Education
at Stellenbosch University**

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5 df]`2014

DECLARATION

By submitting this thesis electronically, I declare that the entirety of this work contained therein is my own, original work, that I am the authorship owner thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any other qualification.

Signed

Marianne Bester

Date

26 October 2013

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ABSTRACT

Based on a number of comprehensive international studies conducted in the past three decades as well as various other national surveys and reports, it is reasonable to argue that a focus on mere academic disciplinary knowledge is not sufficient to meet employers' and students' expectations about higher education studies. These studies support arguments of preparing students for today's rapidly changing and highly competitive labour markets, for periods of unemployment in terms of economic downturn, and for lifelong learning. Moreover, the literature suggests that the so-called discrepancy between the needs of the world of work and those offered by higher education could possibly be addressed by placing a more pertinent focus on the development of graduate attributes. Despite the fact that graduate attributes have been the centre of discussion in many countries over a number of decades, literature indicates that the notion of graduate attributes is a complex concept that relates to issues such as employability, lifewide and lifelong learning, social responsibility and good citizenship, as well as others related to environmental consciousness and technological adeptness.

This study is located within a constructivist-interpretivist paradigm using a phenomenographic approach to investigate the qualitatively different ways in which academic staff members in five undergraduate Applied Design programmes at a University of Technology experience, conceptualise, perceive and understand the phenomenon of graduate attributes in the subjects they teach. The conceptual framework used in the study is based on the three domains of higher learning of the engaged curriculum model of Barnett and Coate (2005). For this study qualitative data was collected using multiple data collection methods, including curriculum document analysis, focus-group sessions and semi-structured interviews. The data analysis process consisted of seven stages of defining the categories of description that emerged from the qualitative data available to the researcher. This was an iterative process of discovery of which the categories of description were not based on predetermined classifications. A set of a limited number of hierarchically related categories of description emerged from this analysis. These categories of description, in conjunction with the relationships among the categories, constitute the outcome space of phenomenography.

Based on the findings from the literature perspectives on graduate attributes and the empirical findings of the phenomenographic study a number of important issues can be highlighted. These include academics' misconceptions of what is meant by graduate attributes as well as the interactions between their conceptions of graduate attributes and how they approach the development of graduate attributes through their teaching practice.

The phenomenographic analysis indicates that if academics view graduate attributes as discrete, isolated units of learning that can be attached to an existing curriculum as a 'quick-fix' to address employers' needs, they are likely to have a simplistic, technicist conception of curriculum and may adopt a transmission, teacher-centred approach to their teaching. Literature has revealed that such approaches negatively influence students' learning experiences. As an alternative approach, an integrated capabilities framework is suggested to support the notion of graduate attributes as a complex, multi-dimensional and inter-related aspects of higher education.

OPSOMMING

Gebaseer op 'n aantal omvattende internasionale studies wat in die afgelope drie dekades wêreldwyd uitgevoer is asook verskeie nasionale opnames en verslae kan daar met reg aangevoer word dat deur slegs klem te plaas op die ontwikkeling van akademiese dissiplinêre kennis binne hoër onderwys daar nie aan die behoeftes en verwagtinge van werkgewers en studente voldoen word nie. Hierdie studies bevestig ook vraagstukke wat verband hou met die voorbereiding van studente vir die hedendaagse snel veranderende arbeidsmark, ekonomiese afswaai en gepaardegaande werksloosheid, asook aspekte rakende lewenslange leer. Literatuur dui daarop dat hierdie sogenaamde tekortkominge moontlik aangespreek kan word deur meer klem te plaas op die ontwikkeling van die kenmerke wat met gegradueerdes geassosieer word. Alhoewel hierdie kenmerke van gegradueerdes reeds gedurende die afgelope aantal dekades en in verskeie lande die spilpunt van bespreking is, dui literatuur daarop dat die opvattinge wat met gegradueerde kenmerke gepaardgaan kompleks van aard is. Dit hou ook verband met kwessies soos werkverkryging, lewenslange en lewenswye leer, goeie burgerskap en gemeenskapsveranderwoordelikheid asook ander relevante kwessies soos omgewingsbewustheid en tegnologiese kundigheid.

Hierdie studie is geïnterpreteer binne 'n konstruktivistiese en interpretatiewe paradigma. 'n Fenomenografiese benadering is gebruik om die opvattinge oor gegradueerde kenmerke, wat akademiese in vyf toegepaste ontwerp kursusse aan 'n Universiteit van Tegnologie het, kwalitatiewelik te ondersoek. Die konseptuele raamwerk vir hierdie studie is gebaseer op die drie aspekte van gevorderde leer wat deel vorm van die samevoegende kurrikulum model van Barnett en Coate (2005). Vir die doel van hierdie studie is kwalitatiewe data ingesamel deur middel van veelvuldige data insamelingsmetodes wat die ontleding van kurrikulum dokumente, fokusgroep besprekings en semi-gestruktureerde onderhoude ingesluit het. Die ontledingsproses het bestaan uit sewe stadiums om die kategorieë van beskrywing, wat vanuit die data ontstaan het, te definieer. Dit was 'n proses van herhaaldelike ontdekking en was nie gebaseer op vooraf bepaalde klassifikasies nie. 'n Stel van 'n beperkte aantal kategorieë van beskrywing binne 'n hierargiese orde het ontstaan vanuit hierdie ontleding. Hierdie kategorieë van beskrywing, met inagneming van die

verband tussen die kategorieë, vorm die uitkomst ruimte (“outcome space”) van hierdie fenomenografiese studie.

‘n Aantal belangrike gevolgtrekkings kan gemaak word gebaseer op die literatuurstudie en die bevindings van die empiriese studie. Hierdie gevolgtrekkings sluit in die wanopvatting van akademiese personele aangaande die kenmerke van gegradueerdes, asook die wisselwerking tussen die akademiese opvatting en wyse waarop hul onderrig benader. Die data-ontleding dui daarop dat indien akademiese kenmerke van gegradueerdes beskou as afsonderlike en geïsoleerde eenhede van leer wat by ‘n bestaande kurrikulum gevoeg kan word as ‘n sogenaamde kitsoplossing om aan werkgewers se verwagtinge te voldoen, hul heel moontlik ‘n oorvereenvoudigde, tegniese opvatting van kurrikulum het en dat hul ook waarskynlik ‘n transmissie, dosentgesentreerde benadering tot onderrig het. Literatuur dui daarop dat sulke benaderings studente se leerervarings negatief beïnvloed. As ‘n alternatiewe benadering, stel die navorser ‘n geïntegreerde raamwerk voor wat gebaseer is op ‘n vermenging van alvermoë en vernuftigheid sodat die kenmerke van gegradueerdes gesien kan word as ‘n stel komplekse, multi-dimensionele en inter-afhanklike aspekte van hoër onderwysstudies.

ACKNOWLEDGEMENTS

I am most grateful to my heavenly Father for His unending grace.

It would not have been possible able to complete this dissertation without the help and support of a number of people. I wish to extend my sincere thanks and appreciation to those who have in various ways contributed to the completion of this study:

- My supervisor, Prof Eli Bitzer (Director of the Centre for Higher Education and Adult Education at Stellenbosch University) for his unwavering support, guidance and dedication.
- My mother, my husband, Albrecht and my children, Suzanne and Frederick, for all the sacrifices they have made. Without their continuous support, encouragement, unconditional love and unwavering belief in me, the conclusion of this task would not have been possible.
- Dr Zandra Bezuidenhout for the language editing of the text.
- Ms Elizabeth de Graaff for her kind assistance with the transcription of digital voice recordings of focus group sessions and personal interviews.
- My valued colleagues and friends for their kindness and motivation to complete this task.
- The academic staff members who participated in the study and without whom this investigation would not have been possible.

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Chapter 1

Orientation to the study

The idea of curriculum goes to the heart of what we take higher education to be, of what it might be and should be in the twenty-first century.

Barnett and Coate (2005:16)

1.1. Introduction

There is widespread recognition that higher education is a major driver of economic competitiveness in countries all over the world, in an increasingly knowledge-driven global economy. The Organisation for Economic Co-operation and Development (OECD, 2008) has indicated that higher education contributes significantly to social and economic development through four major missions; namely, the formation of human capital, the building of knowledge bases, the dissemination and use of knowledge, and the maintenance of knowledge. Worldwide higher education institutions are developing closer relationships with the external world by showing a heightened response to labour-market needs; enhancing social and geographical access to higher education; providing high-level occupational preparation in a more applied and less theoretical way; and finally, by accommodating the growing diversity of qualifications and expectations of school leavers (Pillay, 2011:1).

After 1994, South Africa's overarching challenge has been to redress past inequalities and transform the higher education system to serve a new social order, to meet pressing national needs, and to respond to new realities and opportunities. Related to the main purpose of higher education to contribute to and support the process of societal transformation in South Africa, higher education is also required to equip individuals to make the best use of their talents and of the opportunities for self-fulfilment, as well as to provide the labour market in a knowledge-driven society with the ever-changing high-level competencies and expertise necessary for the growth and prosperity of a modern economy (SA DoE, 1997b:7).

Based on a number of comprehensive international studies such as the Dearing report in the United Kingdom (NCIHE, 1997), the report to the Business Council of Australia and the Australian Chamber of Commerce and Industry (Curtis & McKenzie, 2001), the DeSeCo project (OECD, 2002), the REFLEX project (Allen & Van der Velden, 2007), the Confederation of British Industry (CBI) and the Universities United Kingdom (UUK) report (2009) and various other national surveys and reports (e.g. Griesel & Parker, 2009;

Manpower Group South Africa, 2013; Pillay, 2011) and reports by professional organisations worldwide (e.g. Design Council, 2010a); it is reasonable to argue that a mere focus on academic disciplinary knowledge is not meeting employers' and students' expectations about higher education studies. These studies endorse arguments for preparing students for today's rapidly changing and highly competitive labour markets, for periods of unemployment in times of economic downturn, and for lifelong learning. The modern workplace has new forms of work organisation that are more flexible, technologically oriented and process-based to meet an increased degree of competitiveness, an enhanced quality and reduced life-time of products and services, as well as an ability to swiftly respond to customers' needs. These new forms of work organisation call for a team-based approach of multi-skilled employees who are adaptable, self-directed, responsible, performance-oriented and highly trained.

1.2. Description of the problem

In South Africa, *A baseline study on South African graduates from the perspective of employers* (Griesel & Parker, 2009) focuses on two main issues: what employers expect; and their evaluation of what they currently get. This study indicates that although employers value the conceptual foundation, knowledge and intellectual approach to tasks produced by higher education, there is a real need to address gaps between employer expectations and higher education outcomes. It concludes by indicating that higher education "must take its rightful place in producing thinking, responsive and intellectually well-grounded individuals who are flexible and can readily adapt to new demands and challenges" (Griesel & Parker, 2009:20).

Different ways of addressing this discrepancy between higher education and the needs arising in the world of work are discussed in the quoted literature. Several authors (e.g. Tempone & Martin, 2003:228; Barrie, 2006b:215; Hager & Holland, 2006:4) suggest that a pertinent focus on developing graduate attributes could possibly address this mismatch. Focusing on professionally oriented higher education programmes, Dall'Alba (2009:135) indicates that "the way we currently educate professionals is limited in scope and inadequate in preparing them for the challenges of professional practice in our changing world". She argues that an alternative way forward would be "an ontological turn for professional education programmes, centred on developing professional ways of being". Dall'Alba (2009:136-145) suggests a number of key curriculum design principles for educating professionals, including, among others, the integration of knowledge and skills, overcoming a theory-practice gap in the curriculum, preparing professionals for the challenges of contemporary practice, and promoting the development of professional ways of being.

Barnett (2006:51) argues that the educational challenge in a world of uncertainty is ontological in nature, which points to two key issues, namely that “‘attributes’ have to be understood generously to embrace human beings as such”. Hence the task of higher education is to prepare the ground for forms of human beings that are capable of withstanding profound and incessant change; and secondly, “that higher education needs to undergo a fundamental shift, not exactly to cast off concerns either with knowledge or with skills, but to place at its centre a new concern with being as such”.

Despite the fact that graduate attributes have been the centre of discussion in higher education institutions in many countries over a number of decades, several authors argue (e.g. Barrie, Hughes and Smith, 2009b; Radloff, De la Harpe, Scoufis, Dalton, Thomas, Lawson, *et al.*, 2009) that graduate attributes are largely invisible in most higher education programmes, due to academics’ general lack of engagement with the attributes in question. These arguments indicate that it is important to investigate, firstly, what is meant by graduate attributes in higher education curricula, and secondly, to gain a better understanding of how these graduate attributes are in fact embedded in curricula through teaching practice, all with a view to equipping graduates for the challenges of the world of work in a modern society.

Firstly, the notion of graduate attributes is a complex concept that relates to issues such as employability, lifewide and lifelong learning, social responsibility and good citizenship, as well as to others such as leadership ability, environmental consciousness and technological adeptness. Over the past three decades many countries worldwide have acted on the development of graduate attributes in the curriculum by introducing institutional policies (Barrie, 2004) and graduate attribute statements (Bosanquet, Winchester-Seeto & Rowe, 2010), national projects (Bowden, Hart, King, Trigwell & Watts, 2000; Yorke & Knight, 2006) and good practice and implementation strategies (Oliver, 2011; Oliver, 2013).

Secondly, the literature describes many different ways of developing graduate attributes in higher education curricula through teaching practice. Hager (2006:20) and Jones (2012:3) warn against adopting a simplistic, technicist approach to the development of graduate attributes by viewing generic competencies as discrete and context-independent skills to be taught and assessed in isolation. Barrie (2006, 2007), Dall’Alba (2009) and Jackson (2011) view graduate attributes in higher education as inherent qualities and capabilities of students, with transformative potential – although elusive in character. These authors argue that graduate attributes can be developed more effectively if higher education teachers change their conceptions of, and their orientations towards graduate attributes in higher education curricula. Indications are that they should move away from a view based on merely

imparting knowledge and skills, and instead strive towards creating curricula that support a holistic, emancipatory, reflective, lifewide and lifelong learning process.

1.3. Conceptual framework

Barnett and Coate (2005:59-65, 135) describe curriculum design as an engagement of three interrelated domains of higher learning or educational spaces, namely:

- **Epistemological space**, based on the student's engagement with knowledge, but more specifically his or her *knowing* which requires that attention be given to various forms of knowledge and their purpose in higher education curricula.
- **Practical space**, which relates to action and practice of varying kinds aimed at developing the capacity for purposive, but critically judged actions related to a professional or occupational field of study;
- **Ontological space**, which relates to the development of certain kinds of human capacity and dispositions, a sense of identity and self-awareness that is aimed at guiding the student's inner self, his or her *being* or *becoming*.

These three educational spaces constitute the conceptual framework for this study and are to be discussed in more detail in [Chapter Two](#) of this dissertation.

1.4. Aim of the study

As indicated earlier, the overarching aim of this study was to gain a deeper understanding of the notion of graduate attributes and to explore how graduate attributes are developed in higher education curricula through the teaching practice of academic staff members. Given this broad aim, the study focused on the following primary question:

- What are the current conceptions and orientations of academic staff members regarding the development of graduate attributes in curricula of undergraduate occupationally and professionally oriented Applied Design programmes at the Cape Peninsula University of Technology (CPUT)?

In order to explore the primary research question, the following subsidiary questions were also addressed:

- What are the current **conceptions** (i.e. the "what") of academic staff members in Applied Design undergraduate programmes at CPUT in terms of graduate attributes?
- What are the **orientations** (i.e. the "how") of academic staff members in Applied Design undergraduate programmes at CPUT towards the development of graduate attributes through their current teaching practice?

- What is the **interaction** between the conceptions (the “what”) and orientations (the “how”) of academic staff members towards the development of graduate attributes in undergraduate curricula of occupationally and professionally oriented Applied Design programmes at CPUT?

In responding to these research questions, the researcher considered both the conceptual and contextual aspects related to graduate attributes in higher education from a national as well as an international perspective as described in **Chapter Two** of this study. This also involved an empirical study consisting of focus-group discussions with a large number of academic staff members from Applied Design programmes at the site of investigation, comprising semi-structured interviews with a smaller group of these academic staff members to gain a deeper understanding of the complexities of the problem as described in **Chapter Four** of this study.

The researcher used the research question, supported by the literature perspectives and the empirical study, to address the following aims of this study:

- To explore the current conceptions of academic staff members of undergraduate Applied Design programmes (i.e. Fashion Design, Surface Design, Graphic Design, Industrial Design and Jewellery Design) at the Cape Peninsula University of Technology in terms of graduate attributes.
- To investigate the current orientations of these academic staff members in terms of the development of graduate attributes in these undergraduate programmes.
- To determine the interaction between the conceptions and the orientations of these academic staff members toward the development of graduate attributes in undergraduate occupationally and professionally oriented Applied Design programmes.
- To recommend a framework for the development of graduate attributes at the Cape Peninsula University of Technology, based on the findings from this study,

1.5. Research approach

This study was set within a constructivist-interpretivist paradigm and was based on qualitative research methods using phenomenography as research approach to investigate the qualitatively different ways in which people experience, conceptualise, perceive and understand various aspects of the phenomenon (Marton, 1992:253 in Hasselgren & Beach, 1997:192). Phenomenography adopts a non-dualist or relational qualitative, second-order perspective aimed at describing key aspects of the variation in collective experiences of a phenomenon. The experiences of the phenomenon, as described by the participants of the research project, form the basis of the researcher’s description. The emphasis falls on those

aspects that show differences in the ways a phenomenon is experienced. In a phenomenographic study the different ways in which participants or subjects are aware of a particular phenomenon, within the context, time and location of a situation, can be distinguished in terms of the differences in the structure of awareness. Such “awareness” consists of structural and referential aspects, as well as the corresponding meaning assigned to the phenomenon.

The phenomenographic data analysis process focuses on the relationship between the subjects and their experiences of the phenomenon as revealed through transcriptions of voice-recorded interviews. Through a process of discovery, the findings of a particular phenomenon are presented in a set consisting of a limited number of hierarchically related categories of description (Trigwell, 2006). These categories of description, in conjunction with the relationships among the categories, constitute the outcome space of phenomenography (Marton & Booth, 1997:117).

1.6. Research design and methods

Qualitative data is often collected by means of face-to-face interviews, although other means such as drawings, focus groups, and written surveys are also suitable. The researcher used a phenomenographic approach to obtain qualitative data on the conceptions and orientations of academic staff members teaching in five Applied Design programmes in the Faculty of Informatics and Design at the Cape Peninsula University of Technology in terms of graduate attributes during 2012. The following five Applied Design programmes were selected for this purpose: Fashion Design, Graphic Design, Industrial Design, Jewellery Design and Surface Design.

1.6.1. Data collection in phenomenography

Mason (2002:7) argues that qualitative research should be systematically and rigorously conducted and that decisions regarding the research approach should demonstrate sensitivity to the changing contexts and situations in which the research takes place. Qualitative research should involve “active reflexivity”, which means that researchers should constantly take stock of their actions and their role in the research process (Mason, 2002:7). With these guidelines in mind, the researcher adopted a coherent, systematic and rigorous approach to the data collection process for this phenomenographic study. The primary focus was on capturing the richness of the collective experiences of the participants regarding the particular phenomenon as best as possible, given the particular circumstances and constraints. Throughout the data collection process, which consisted of three interrelated

phases, the researcher reflected critically on her role as researcher as well as on the effectiveness of the methods of data collection. The three interrelated phases of data collected for this study comprised the following:

- The **first phase of the data collection and analysis process** commenced in January 2012 with the analysis of curriculum documentation. This included the SAQA registered qualification documents, the programme and subject guides and other relevant material to understand how each academic programme was structured during 2012 and to determine to what extent the current curricula individually, and jointly as a cluster of Applied Design undergraduate programmes, address graduate attributes as defined in terms of the SAQA critical cross-field outcomes and the four framing categories of the SAQA-HESA baseline study (Griesel & Parker, 2009).
- The **second phase of the data collection and analysis process** commenced in July 2012 and was concluded in December 2012. Two focus-group discussions of approximately six hours each per Applied Design programme were facilitated by the researcher. The aim was to gain a deeper understanding of how the three interrelated aspects of an engaged curriculum of knowing, doing and being (Barnett and Coate, 2005) were embodied in the curricula of the Applied Design programmes in question. Approximately 20 academic staff members consisting of part-time and full-time staff, and ranging from staff members who had been with the institution for a relatively short period of time to senior staff members with more than 20 years of experience, attended these sessions. The focus-group sessions were representative in terms of race and gender. To facilitate discussions in the focus-group sessions, academics engaged in reflective exercises, as well as developing visual concept maps (Novak & Cañas, 2008) to illustrate how the three key aspects of an engaged curriculum manifested in the subjects taught by the respective academics during 2012. These focus-group sessions were digitally voice-recorded with written permission from the Dean of the Faculty of Informatics and Design, and with verbal permission from the participants in the focus-group sessions. The initial analysis of the data collected during these focus-group sessions commenced immediately after each session had taken place. This data was used to inform the second focus-group session that would take place a few days or even weeks later. The second focus-group session, facilitated by the researcher, was used to confirm the data obtained in the first focus-group session. These sessions allowed the researcher to explore contentious issues and to clarify academics' conceptions and orientations towards graduate attributes in their curricula. Both focus-group sessions took place in a

comfortable environment and in a relaxed atmosphere that generated open and free dialogue among staff members.

- The **third phase of the data collection and analysis process** consisted of semi-structured face-to-face interviews with a small group of academic staff members using purposive sampling. A total of eight interviews were conducted in the period July 2012 to 2013, using interview questions focusing on two aspects, namely the *what* and the *how* of graduate attributes in the Applied Design programme offered at the Cape Peninsula University of Technology. Prior to the actual interview, academic staff members from the Applied Design programmes were requested to grant informed consent by signing the consent form designed for this purpose. These interviews were conducted by the researcher in a relaxed manner and in the privacy of the lecturer's office.

1.6.2. Data analysis in phenomenography

Blaikie (2000:115) in Mason (2002:56) argues that interpretivist approaches to data analysis are aimed at understanding the social world that people have produced and which they produce through their continuing activities by stating:

This everyday reality consists of meaning and interpretations given by the social actors to their actions, other people's actions, social situations, and natural and humanly created objects. In short, in order to negotiate their way around their world and make sense of it, social actors have to interpret their activities together, and it is these meanings, embedded in language, that constitute their social reality.

Phenomenographic data analysis is an interpretivist approach that focuses on the relationship between the subjects/group of people and the phenomenon, as revealed through the type and nature of the qualitative data available to the researcher, which often is based on transcripts of voice-recorded interviews and/or focus-group discussions. Phenomenographic data analysis is not based on predetermined classifications, but the aim is to discover categories of description through a process of discovery rather than construction (Walsh, 2000:20) which constitute a set of a limited number of hierarchically related categories of description. Cope (2004:6) indicates that the hierarchical structure is typically based on increased complexity of ways of experiencing a particular phenomenon and on the logical inclusiveness of the categories of description. These categories of description, in conjunction with the relationships among the categories, constitute the outcome space of phenomenography (Marton & Booth, 1997:117). The data analysis process, described in **Chapter Four**, consisted of seven stages which commenced with the organisation of the different sets of data from the three phases of the data collection process as listed above. This was followed by several stages of data analysis that culminated into

two separate, yet related sets of categories of description in terms of the conceptions (i.e. the **what**) of academic staff members regarding graduate attributes, and the orientations (i.e. the **how**) of academic staff members towards embedding graduate attributes in the curricula of the subjects they were teaching during 2012. The final stage of data analysis constituted the development of an outcome space for both the conceptions and the orientations of Applied Design staff members, which in turn would lead to an enhanced approach to curriculum design, as discussed in [Chapter Five](#) of this dissertation.

1.6.3. Validity and reliability of phenomenographic research

Åkerlind (2005) and Cope (2004) argue that validity and reliability of the results of phenomenographic studies are contentious issues with no clear resolution in literature. Cope (2004:8) suggests that issues of validity hinges on the researcher's justification for presenting the outcome space and claims based on results. These should be based on a full and open account of the methods of data collection and analysis, as well as on the outcomes achieved. He recommends that consideration should be given to aspects such as: the researcher's background, clarification of the characteristics of the participants, steps taken to collect unbiased data, as well as attempts to approach the data analysis with an open mind, rather than imposing an existing structure on the data. These considerations, as well as the three phases of communicative validity suggested by Sandberg (1994) in Mann, Dall'Alba and Radcliffe (2007:20) have been employed in executing this phenomenographic study. These aspects are discussed in more detail in [Chapter Four](#) of this study.

1.6.4. Ethical considerations

Henning (2004:73) and Strydom (2002:63-73) indicate that a number of ethical issues and concerns should be considered when embarking on a qualitative study. These concerns include aspects such as informed consent, anonymity, confidentiality, the right to withdraw and ethical approval. The researcher obtained written permission from the Dean of the Faculty of Informatics and Design to conduct in-depth semi-structured personal interviews with academic staff members (See [Appendix A](#)). Permission was also obtained from the Faculty Teaching and Learning Coordinator to use data from focus-group sessions on curriculum review in the faculty for this study. Prior to each interview the researcher approached interviewees in writing to obtain permission, and interviewees provided informed consent (See [Appendix C](#)). Due to the large number of participants who attended the focus-group discussions, it was not possible to obtain written permission from all the participants. The researcher obtained permission from the Faculty Teaching and Learning coordinator prior to the focus group session to use the data generated in these sessions. Verbal

permission was also obtained from participants during each focus-group session to voice-record certain parts of the focus-group sessions. No participants objected to this practice during any of the focus-group sessions. No first names and surnames of participants were used in the research report and extracts obtained from both the interviews and focus-group sessions were dealt with in such a manner as to protect the confidentiality of individuals. Since the emphasis was on the collective experiences of participants, there was no need to identify individuals during the data analysis process. The Faculty Teaching and Learning coordinator of the Faculty of Informatics and Design, who also attended the focus-group sessions during 2012, received a final copy of the data analysis section of this dissertation prior to submission. He confirmed that the researcher had taken the necessary precautions to protect participants' right to privacy and that the data analysis section did not contain information of a sensitive nature.

1.7. Clarification of terminology and concepts

A number of key words, terms and concepts are used in this study, of which the concepts of *knowing*, *doing* and *being* associated with an engaged curriculum as defined by Barnett and Coate (2005). The most important words include “graduate attributes”, “knowledge”, “skills” and “capabilities”. Given the complex nature of each of these concepts, considerable attention is paid to them in the literature review in [Paragraph 2.4](#), [Paragraph 2.6](#), [Table 2.4](#) and [Table 2.8](#) of [Chapter Two](#). It is, however, important to clarify the meanings associated with the key terms of “generic graduate attributes” and “graduate attributes”, particularly as these are central to the study. Although the terms generic graduate attributes and graduate attributes are used interchangeably in the literature, and are often confused with other terms associated with graduate attributes such as generic skills, transferable skills, employability skills and even “soft” skills as indicated in [Table 2.8](#), the researcher has adopted the following operational definitions in this study:

- **Graduate attributes** speak to outcomes of a learning programme that is based on a blend of learning domains of an engaged curriculum (Barnett & Coate, 2005), consisting of *knowing*, *doing* and *being* which reflect the purpose of a qualification and the extent to which the blend is reflected in the attributes of a graduate (CHE, 2013:19). Although graduate attributes and learning outcomes are not construed as mutually exclusive, the term graduate attributes as used in this study includes disciplinary and subject knowledge, practical and reflexive skills, as well as technical competence. In addition, it encompasses the values, attitudes, personal qualities and ethical and professional behaviour expected of graduates.

- **Generic graduate attributes** often referring to generic or transferable skills in literature encompass generic aspects such as collecting, analysing and organising information, communicating ideas and information, working with others, using numeracy and mathematical skills and techniques, solving problems, planning and organising activities, using science and technology, as well as self-management and interpersonal skills. Generic graduate attributes are therefore those “qualities, skills and understandings that a university community agrees its students should develop during their time with the institution. These attributes include, but go beyond, the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that prepare graduates as agents for social good in an unknown future.” (Bowden, Hart, King, Trigwell & Katts, 2000: on line).

It is important to note that the researcher did not alter the meanings associated with concepts and terminology on graduate attributes when these were discussed in the literature review, but tried to convey the meaning/s associated with the concepts and terms obtained from the original source/s as accurately as possible.

1.8. Positioning the study

This study is located within a constructivist-interpretivist paradigm using a phenomenographic approach to investigate the qualitatively different ways in which academic staff members in Applied Design programmes at a University of Technology experience, conceptualise, perceive and understand the phenomenon of graduate attributes in the subjects they teach. The researcher worked from the perspective that graduate attributes can be viewed from three different vantage points (Barrie, Hughes & Smith, 2009a) namely:

- A stance toward the **world** with particular emphasis on employability, global citizenship, a sense of social and environmental responsibility and technological adeptness.
- A stance towards **knowledge, skills, competence and complex practice** related to employers' expectations of graduates who will be required to adapt to a changing world.
- A stance towards the **self** that is underpinned by a sense of being and becoming within an age of uncertainty and change with emphasis on lifewide and lifelong learning.

The researcher did not seek to impose a single correct definition or interpretation of the term graduate attributes in this dissertation, but tried to acknowledge different perspectives derived from the literature in [Chapter Two](#), as well as the qualitatively different conceptions

and orientations of academic staff members who participated in this study in **Chapter Four**, in an attempt to reach a deeper understanding of the complexities of the domains of higher learning, both from a personal and professional point of view.

1.9. The structure of the study

This chapter provides an outline of the study that is described in depth in the four chapters that follow. In **Chapter One** the purpose of the study, the research question and objectives of the study are explained, while a concise description of the conceptual framework is also presented. **Chapter Two** provides both a conceptual and contextual overview of literature perspectives to unravel the complexities associated with graduate attributes in higher education. This chapter describes the conceptual framework of an engaged curriculum in more detail. It explores international and national perspectives on the conceptual and contextual aspects related to the four principal arguments in literature, with a view to adopting a more pertinent focus in higher education on the development of graduate attributes. **Chapter Three** describes phenomenography as a research approach used in this study including the aims, nature and theoretical foundations of phenomenography. This chapter also explains the research design and methodological aspects of data collection and analysis related to this phenomenographic study. In **Chapter Four** the researcher presents the phenomenographic data analysis and findings in terms of categories of description and outcome spaces. **Chapter Five** of this dissertation deals with the conclusions, implications and limitations of the study, based on the findings and perspectives in the literature mentioned in **Chapter Two** and the phenomenographic data analysis and findings presented in **Chapter Four**. A proposed framework for ways to approach graduate attributes in the curriculum design of Applied Design programmes is also provided. This chapter concludes with comments on opportunities for further research, recommendations for future practice and a final reflection by the researcher on the research journey.

Chapter 2

Literature perspectives

Curriculum is distinctly difficult to pin down so why waste time trying to? Just when it seems to come into view – as we box it in through descriptions of course units, aims and objects – so it flits off again into the even more shadowy form of “curriculum-in-action”.

And then the elusiveness of curriculum becomes an invisibility. The more we peer at curriculum, the more it seems to recede from our reach. The more we talk about it, the more we examine it, the more mysterious it seems to be. It disappears before us, even as we may think it is coming into view. So, our would-be debater is in for a difficult time, or so it would seem. The discussion would undermine itself for it would reveal the essential trickiness of the concept of curriculum.

Barnett and Coate (2005:153)

2.1. Introduction

For centuries the notion of “skill” has been associated with the aims, purpose and outcomes of higher education (HE). Bennett, Dunne and Carré (2000:3) indicate that even in earlier times Newman’s (1853) idea of a “university man”, independent of the subject studied, included cognitive skills such as analytical thinking, communication and interpersonal skills, as well as certain affective qualities. Even in these times, Newman related the fulfilment of the individual and the improvement of society to the role of universities. The concept of “skill” is often associated in literature with knowledge, skills, attributes and capacities that enable individuals to successfully and consistently perform a task or activity (OECD, 2012). Skills are key elements to the prosperity of nations, directly contributing to economic growth through increased productivity, and indirectly by creating improved human capacity to adopt new ways of working and living, by spurring innovation and by adopting new technology. Wheelahan and Moodie (2011:1) maintain that “governments around the world are increasingly more concerned with skill – skill development, skill shortages, and skills mismatches”. These skills shortages and mismatches between the supply of and the demand for skills lower the potential growth of countries and impact negatively on the lives of individuals.

In the recent *Green Paper for Post-School Education and Training* (SA, DHET, 2012:viii) the Minister of Higher Education and Training, Dr BE Nzimande, states that it is the responsibility of the Department of Higher Education and Training (DHET) “to ensure that those entering the labour market are qualified and competent to take up the employment and income

generating opportunities that exist, and that will exist as the economy grows and changes in the future". The development of skills and competencies is therefore associated with the growth and prosperity of a country and hence regarded as intrinsic to innovation, competitiveness and productivity. Skills are also considered intrinsic to social inclusion, as those without skills are marginalised from work, often experience lower levels of health and well-being, and have less capacity to shape their life experiences (Wheelahan & Moodie, 2011:1). Although worldwide there might be agreement on the importance of skills development and the role of education and training in developing these skills and competencies, what is less clear is the nature and types of skills and competencies we need in a modern society, and how these should be developed. Research on the outcomes achieved by HE students in many countries suggests that university graduates are not necessarily developing the kinds of skills required by industry. It points towards shortcomings in terms of important skills such as communication, decision-making, problem-solving, leadership, emotional intelligence and social ethics as well as cultural sensitivity (Nair, Patil & Mertova, 2009:131). This so-called "competency or skills gap" points to a possible mismatch between graduate skills and the skills needed in the workplace (De la Harpe, Radloff & Wyber, 2000; Griesel & Parker, 2008), yet the actual details of the nature of this so-called gap and how to address it is often neglected (Harvey, 2003). However, recent studies such as the DeSeCo project (OECD, 2002), the REFLEX project (Allen & Van der Velden, 2007) and the CHEERS study (Teichler, 2001, 2009), amongst others, have tried to address this issue.

Wheelahan and Moodie (2011:8) contend that this alleged mismatch between higher education and the world of work, the rapid pace of social, economic and technological changes and the demands of the knowledge economy have contributed to an emphasis on generic competencies or graduate attributes in higher education policy. Bath, Smith, Stein and Swann (2004) identified three factors that have resulted in a pertinent focus on developing graduate attributes in higher education, namely: the perspective of education as a lifelong process, the focus on employability of graduates, and the development of outcome measures to justify the quality of higher education. Bosanquet, Winchester-Seeto and Rowe (2010) point out that in addition to the emphasis on employability and lifelong learning, literature on graduate attributes also points to a need to prepare students for an uncertain future as well as acting for the social good of society. The focus on graduate attributes also forms part of a bigger debate about the purpose of higher education and how to develop well-educated individuals who are both employable and capable of contributing to civil society (Hager & Holland, 2006:4).

With reference to these views on the alleged discrepancies between higher education and the world of work, this chapter will explore the following **four principal, yet interrelated arguments or meta-concepts** for adopting a pertinent focus on developing graduate attributes in higher education.

The **first argument** is derived mainly from the world of work. Employers consistently hold the view that academic disciplinary knowledge is only a facet of a much larger set of knowledge, skills, abilities and qualities required by individuals to operate effectively in the workplace. Hence governments, international and national agencies and employer bodies in many countries have, for a period of more than twenty years, placed emphasis on the development of generic employability skills.

As indicated earlier, the relationship between higher education and a country's economy has long been acknowledged, resulting in the need for graduates emerging from the higher education system to be ready and able to contribute to future economic growth through the provision of knowledge, skills and attributes. The economic, political and environmental pressures upon higher education institutions have placed the issue of graduate employability centre stage in many countries. Harvey (2003:3) argues though that employability is not just about getting a job. Harvey (2003:3) continues by stating that:

Employability is more than about developing attributes, techniques or experience just to enable a student to get a job, or to progress within a current career. It is about learning and the emphasis should be less on "employ" and more on "ability". In essence, the emphasis is on developing critical, reflective abilities, with a view to empowering and enhancing the learner.

Broadly speaking, employability is regarded as "a set of achievements – skills, understandings and personal attributes – that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy" (Yorke, 2006:8). It is generally accepted that students should acquire these attributes as some of the outcomes of successfully completing a university degree.

The **second argument**, related to the world of work, is predicated on a view that higher education needs to prepare students around the idea that the future is largely unknown. In a dynamic knowledge-based society and global economy the knowledge, skills and capabilities required by graduates cannot be readily predicted and are subject to ongoing change. Bowden and Marton (1998:26) argue:

The future is, necessarily, always unknown but there are degrees of uncertainty. We would like to argue that the future we are preparing our students for is becoming less

and less transparent, or more and more unknown. And what are the tools we can use? They are our knowledge, what we know and what is known. So, we are trying to prepare our students for the unknown by using what is known. A question – or rather the question – is then: “how can this be done?”

Jackson (2011b:11) states:

We live in a world where change is exponential and we are currently helping to prepare students for jobs that don't yet exist, using technologies that have not yet been invented in order to solve problems that we don't know are problems yet.

It may sound dramatic, but the reality is that the majority of our students will have not one but several careers; they will have to change organisations, roles and identities many times and be part of new organisations that they help to create or existing that they help to transform.

Barnett (2006:50) argues that a new, super complex world order marked by contestability, changeability and uncertainty requires new knowledges, new adaptations and new skills, including the need for new forms of “being” in this world. The curriculum, according to Barnett (2006, 2009) becomes a vehicle not for knowledge or skills acquisition, but for living effectively in this world. Hence, the educational challenge in a contemporary world is that of “being” and the task of higher education is “to prepare the ground for forms of human being that are going to be able to withstand profound and incessant change” – graduates that are future-fit for life (Barnett, 2006:51).

The **third argument** relates to the role of higher education in preparing students as social change agents. Harvey (2000:3) states that the primary role of higher education is “increasingly to transform students by *enhancing* [italics in original text] their knowledge, skills, attitudes and abilities while simultaneously *empowering* [italics in original text] them as lifelong critical, reflective learners”. Furthermore, Harvey (2000:3) argues that higher education has to be transformed to achieve this purpose of educating graduates as transformative agents in society. Bowden, *et al.* (2000, on line) in a report, compiled as an outcome of a reflective, developmental process involving six academic development staff and thirteen course teams in five Australian Technology Network universities, define graduate attributes as:

... the qualities, skills and understandings a university community agrees its students should develop during their time with the institution. These attributes include, but go beyond, the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents for social good in an unknown future.

The **fourth argument** relates to the previous three arguments of employability, responding to the needs of a changing world and social change agents by reinforcing the need for universities to ensure that graduates possess attributes needed not only for work, but for life. Barnett (2011:29) suggests that higher education should expand its role to include not only

the development of knowledge and skills, but of dispositions and qualities – developing students holistically as persons. He argues that by developing the dispositions and qualities of students, they are being developed to engage with life and influence their own destiny. Supporting this view, Jackson (2011b:9,12) maintains that traditional forms of discipline-based higher education do prepare students for a complex and changing world, but argues that higher education should take up the challenge by enhancing the effectiveness of the curriculum in preparing students for lifewide and lifelong learning. Jackson (2011b:1-2) expands on the current perspective of lifelong learning by arguing in favour of an expanded view of lifewide learning:

As we develop deeper understandings about the sorts of learning and development that are required for living a successful and fulfilled life in a complex modern world, it becomes more and more apparent that our educational institutions need to pay more attention to developing learners as whole people. Focusing so much attention on the cognitive development of individuals misses the point of what well-rounded education should be about. By examining the idea of lifewideness we are opening up the possibilities for a more complete education: one that recognises that formal education is just one part of an individual's whole life: a life that is full of opportunity for learning and education.

Related to the meta-concepts of graduate attributes described above, the issue of terminology is another complex matter. Bohlinger (2012:288) indicates that despite work by a number of European Commission technical working groups and the European Centre for the Development of Vocational Training (Cedefop) over the past few years to develop clear and research-based definitions of the terms such as knowledge, skills and competencies, these are still absent in the final version of the European Qualifications Framework of April 2008. Literature indicates that a bewildering array of terms such as: generic, core or key competencies and skills; workplace competencies, personal skills, transferable skills, employability skills; professional skills, graduate qualities; generic attributes; generic capabilities; graduate capabilities, graduateness; graduate attributes and others have emerged as a result of different interpretations by governments, universities and education systems worldwide to address problems that arise from a mismatch between skills, qualifications and jobs. These terms are often used interchangeably (e.g. Barrie & Jones, 1999; Jones, 2001). While the terms and their definitions vary considerably, Jones (2001:3) indicates that the categories of skills and attributes relate mainly to the acquisition of:

- A body of disciplinary knowledge.
- A critical understanding which comes from the communication, application and evaluation of a body of knowledge.
- The commitment to ethical practices and social responsibilities.
- A capacity for employment and lifelong learning.

2.2. Purpose and focus of this chapter

As indicated above, research on the subject of graduate attributes in higher education is multidimensional and complex. Factors contributing to this complexity include the lack of clarity in the use of language and definitions, the capacity to fully grasp the challenges both from the perspective of higher education and the world of work; and the changing nature of the workplace. The main purpose of this chapter is to provide a comprehensive literature review that will inform the qualitative research process based on a phenomenographic study, consisting of individual interviews with a selected number of academic staff members and focus group discussions at a University of Technology in Applied Design programmes. The overall objective is to gain a deeper understanding of the question regarding the conceptions of graduate attributes (including generic and transferable skills, competencies and attributes) and the orientations of academics towards the development of graduate attributes in higher education as posed by Barrie (2006:215):

As university communities struggle to identify what combination of skills, attributes and knowledge to include in these statements of graduate outcomes, and begin to come to terms with how to develop curricula to effectively achieve these outcomes, the fundamental nature of these outcomes is a vital preliminary question to address.

The focus of this chapter on literature perspectives, consisting of three inter-related sections, is to explore how challenges and opportunities of the 21st century knowledge-based society and global economy contribute towards an increased emphasis on developing graduate attribute outcomes in higher education. Secondly, a more pertinent focus on the meta-concepts associated in literature with the development of graduate attributes in higher education as defined by Bath *et al.* (2004) and Bosanquet *et al.* (2010) will follow. These meta-concepts of: employability; preparing for an uncertain future; acting for social good; and lifelong and lifewide learning will be explored in detail together with the curricular and pedagogical issues related to the development of graduate attribute outcomes in higher education. For this purpose, the curriculum design model of Barnett and Coate (2005) consisting of the epistemological perspective of **knowing**, the praxis perspective of **doing** and the ontological perspective of **being or becoming** will be used. Barnett and Coate (2005:48) argue that related to learning for an unknown future, it is important to consider the following three challenges:

- What kinds of *knowledge* are required in HE curricula in responding to the changing world?
- What kinds of *action* relevant to the professional and occupational practice are required on the part of the student?

- What *personal attributes, values and attitudes* should students have to function effectively in a changing world – in other words the actual **being** or inner self of a student?

The engaged curriculum model (Barnett & Coate, 2005) as conceptual framework consisting of a set of interconnected ideas about a particular phenomenon and its related parts, will be augmented by a more pertinent focus on:

- The curriculum conceptions of academic staff members in general with reference to work of Fraser and Bosanquet (2006); Shawer, Gilmore and Banks-Joseph (2008) and Light, Cox and Calkins (2009), among others.
- The conceptions and orientations of staff with specific reference to graduate attributes will be discussed, based on recent research of Barrie (2006, 2007) and Jones (2009).

Barrie (2007:440) indicates that these conceptions and orientations vary in terms of:

- The **“what” or nature of the outcomes**, ranging from low-level technical and personal skills to holistic interwoven abilities and aptitudes of learning.
- The **“how” or relationship between graduate attributes and disciplinary knowledge** as well as the additive or transformative potential of such attributes in the curriculum.

Hence, the **objectives** of this chapter on literature perspectives are to:

- Provide and explain the three domains of a conceptual framework for higher education curricula using the three domains of higher learning defined by Barnett and Coate (2005) for this purpose (See **Section 1**).
- Explore how challenges and opportunities of the 21st century knowledge-driven society and global economy contribute towards an emphasis on graduate attributes in higher education curricula (See **Section 2**).
- Relate the notion of graduate attributes in higher education to the change factors impacting on higher education by elaborating on the four principal arguments or meta-concepts associated with graduate attributes from an international and national perspective (See **Section 2**), namely:
 - Enhancing employability of graduates.
 - Preparing students for a world of “supercomplexity”.
 - Preparing graduates for global and social citizenship.
 - Strengthening the propensity for lifelong learning and lifewide learning.

- Relate the conceptions and orientations of academic staff in terms of curriculum to the development of graduate attributes in higher education (See **Section 3**).

Summarily, this chapter is sub-divided into **three main sections** as illustrated in the exploratory framework in **Figure 2.1** and will attempt to provide answers to the following questions:

- **Conceptual framework** (See **Section 1**):
 - If graduate attributes relate to knowledge, skills, attributes and qualities of graduates in higher education, does the conceptual framework of Barnett and Coate (2005) provide an appropriate point of reference for this study?
 - How do graduate attributes relate to knowing, doing and being as domains of higher learning?
- **An alleged mismatch between the world of work and higher education** (See **Section 2**):
 - Is there a mismatch between the needs of the world of work and what higher education is delivering? If so, what is the nature of this mismatch?
 - Does this mismatch point toward generic competencies and skills as a possible solution to address the “so-called” mismatch?
- **Contextual and conceptual issues related to graduate attributes** (See **Section 3**):
 - What are graduate attributes? How does the notion of graduate attributes differ from other terms such as generic competencies, key and core skills, employability skills and many others used in literature?
 - How did the notion of graduate attributes evolve over time in different countries?
 - What are the four main arguments of meta-concepts underpinning the notion of graduate attributes in higher education?
 - Why are graduate attributes in higher education so difficult to define?
 - What are the conceptions and orientations of academics in terms of curriculum and graduate attributes?
 - Are graduate attributes generic in nature or context-specific or a blend of both?

It is important to note that the researcher will use the term “graduate attributes” throughout this chapter, unless the researcher is referring to terms and their definitions used in specific sources consulted for this chapter. In such cases the terminology and definitions of the original source(s) will be used. The researcher is not seeking to impose a single “correct”

definition to the term “graduate attributes” in this chapter, but is attempting to acknowledge the reality of disparate, and often perplexing, understandings evident from literature on the topic. However, the researcher will close this chapter on literature perspectives using a blended approach to the notion of graduate attributes consisting of the following key considerations:

- Knowledge, skills and attributes related to the acquisition of a body of disciplinary knowledge and this makes knowledge socially powerful and “endows it with the capacity to disrupt existing power relations” (Wheelahan, 2010:145).
- A critical understanding of this body of disciplinary knowledge which comes from the communication, application and evaluation of this body of disciplinary knowledge (Jones, 2009; Jones, 2012; Wheelahan, 2010).
- A commitment to ethical practices related to the field of study and the social responsibilities associated with these practices which contribute to “becoming” and “being” a professional in this field of study (Dall’Alba: 2009).
- A capacity for employment (Harvey, 2003; Yorke, 2006; Yorke & Knight, 2006) and lifelong learning (Candy, 1995 in Bath & Smith, 2009:175) and lifewide learning (Jackson, 2011a, 2011b) are integral aspects of graduate attributes in higher education.

This blended approach to exploring graduate attributes in higher education allows the researcher to explore the notion of graduate attributes in this study from three different stances (adapted from Barrie, *et al.*, 2009a) and in keeping with the following three principle arguments of Bowden *et al.* (2000 on line), namely:

- A stance toward the **world** with particular emphasis on employability, global citizenship, a sense of social and environmental responsibility and technological adeptness.
- A stance towards **knowledge, skills, competence and complex practice** related to employers’ expectations of professional educated graduates.
- A stance towards the **self** – a sense of “being” and “becoming” within an age of uncertainty and change with emphasis on lifewide and lifelong learning.

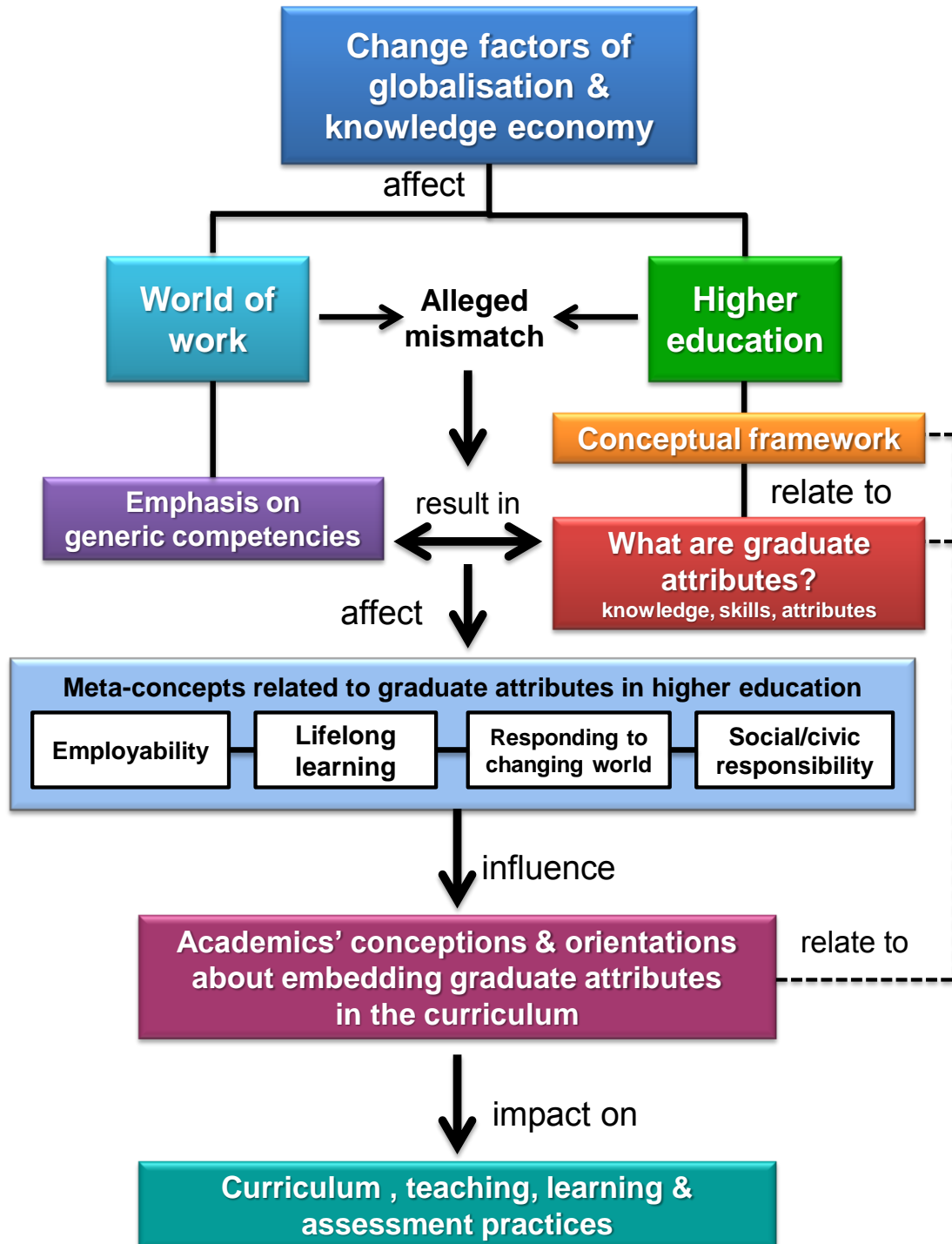


Figure 2.1: Exploratory framework for literature perspectives

Section 1: A conceptual framework

An engaged higher education curriculum

2.3. Introduction

Bowden and Marton (1998:11) argue that “education is about the future, and not the present”. Gravett (2004:23) states that higher education (HE) is “supposed to prepare students for managing situations in the future”, yet “the more rapidly the world changes, the more unknown the future becomes” and the more complex the responses required to address these challenges. Barnett refers to the challenge faced by higher education as follows:

Higher education is faced with not just preparing students for a complex world, it is faced with preparing students for a supercomplex world. It is a world where nothing can be taken for granted, where no frame of understanding or of action can be entertained with any security. It is a world in which we are conceptually challenged and continually so (2000, 257).

This supercomplexity shows itself discursively in the world of work through terms such as “flexibility”, “adaptability” and “self-reliance” ...we find a sense of individuals having to take responsibility for continually reconstituting themselves through their life span (2000, 258).

A world of supercomplexity ... implicates different dimensions of human being calling forth, in curriculum design, epistemological (knowing), praxis (action) and ontological (self-identity) elements (2000, 263).

Jackson (2011b:11) elaborates on the nature of the challenge facing higher education:

We live in a world where change is exponential and we are currently helping to prepare students for jobs that don't yet exist, using technologies that have not yet been invented in order to solve problems that we don't know are problems yet.

It may sound dramatic but the reality is that the majority of our students will have not one but several careers; they will have to change organisations, roles and identities many times and be part of new organisations that they help to create or existing that they help to transform.

Rittel and Webber (1993) in Jackson (2010) refers to this challenge of higher education having to prepare students for a world of 'supercomplexity' as a “wicked problem” that cannot be solved through rational, linear problem solving processes as the problem definition and our understandings of the problem evolve over time as new possible solutions emerge. Wicked problems always occur in social contexts as the wickedness of these problems relate both to the nature of the problems and the ways these problems need to be tackled, within the context of diverse views among stakeholders (Conklin, 2005).

Barnett (2004:247) indicates that “learning for an unknown future should be understood neither in terms of knowledge or skills, but of human qualities and dispositions”. Gravett

(2004:23) poses the question: How do we therefore teach to prepare students for an uncertain, rapidly changing future? According to Barnett (2004:247) learning for an unknown future calls, in short, for “an ontological turn”. Sullivan and Rosin (2008:xv, xxi) in Scott and Fullan (2009:45) indicate that the core purpose of higher education is not only to impart knowledge or to develop students to become critical thinkers, but to “prepare students for lives of significance and responsibility [by developing] a life of the mind *for practice*” (italics in original). This life of the mind for practice means developing students’ capacity “to blend knowledge, skills and appropriate attitude in response to unique situations that require expert judgment”. It is therefore appropriate to ask the following questions related to vocational and professional higher education curricula:

- What kinds of **knowledge** are required in HE curricula in responding to the changing world?
- What kinds of **action** relevant to the professional practice are required on the part of the student?
- What **personal attributes, values and attitudes** should students have to function effectively in a changing world – in other words the actual **being** or inner self of a student? (Barnett & Coate, 2005:48.)

These questions relate to the three key interrelated domains of an engaged curriculum, identified by Barnett and Coate (2005:70) consisting of “knowing”, “doing” and “being” which provides an analytical frame through which to understand curricula in higher education. The curriculum design as engagement of knowing, doing and being is based on the following educational spaces defined by Barnett and Coate (2005:135):

- **Epistemological space** in which students can acquire a deep understanding of knowledge and take up informed and critical stances in relation to it.
- **Practical space** so that students can develop the capacities for purposive but critically judged actions – these may be tied to disciplinary knowledge or professional fields or may be more life oriented (such as action in the community).
- **Ontological space** for the development of the student’s own being has to take central stage in the design of a curriculum for higher education.

These three interrelated domains of higher learning relate to graduate attributes, with a strong emphasis on developing capabilities (not generic competencies and skills), dispositions and qualities in a dynamic relationship. It is, in my opinion, best described by Stephenson and Weil (1992:2) in Yorke (1999:16) as “capable people” who have confidence in their ability to take effective and appropriate action, explain what they are seeking to achieve, live and work effectively with others, and continue to learn from their experiences, both as individuals and in association with others, in a diverse and changing society.

Relating the notion of “capability” to definitions of the term “graduate attribute” implies that “capability is a necessary part of specialist expertise, not separate from it”, and hence capable people, according to Stephenson and Weil (1992:2), are those individuals who “not only know about their specialisms, they also have the confidence to apply their knowledge and skills within varied and changing situations and [who] continue to develop their specialist knowledge and skills” (Yorke, 1999:16).

2.4. Domains of higher learning: knowing, doing and being

Barnett and Coate (2005:65) proclaim that there are three domains of higher learning which relate to a dynamic set of forces impacting on higher education curricula:

Knowing, acting and doing are building blocks precisely in the sense that no curriculum can be complete without all three being present and subject to separate consideration.

According to Barnett and Coate (2005:59-65), responding to the needs of a changing world calls for:

- The student’s engagement with knowledge, but more specifically his or her **knowing** which requires that attention should be given to various **forms of knowledge** and their purpose in HE curricula.
- **Action and practice** of varying kinds – inside the classroom, laboratory or studio while at university, but also in work-related situations while on placement in industry. Action requires the student to engage with an identity and to **act** out the role of that identity. Closely aligned to practice is also the notion of **skill**.
- Certain kinds of **human capacity and dispositions** and for self-awareness and self-confidence that speak to the student’s inner self, his or her **being** or **becoming**.

Figure 2.2 provides a diagrammatic representation of the schema that Barnett, Parry and Coate (2001:438) and Barnett and Coate (2005:70) use to illustrate the relationship between these three domains of higher learning, which should be seen as elements influenced by “a dynamic set of forces” such as shifting epistemologies, academic communities, institutions, professions, the corporate world, students and state agencies. Each of these three domains of higher learning will be explored in more detail below with a pertinent focus on vocational and professional curricula in higher education.

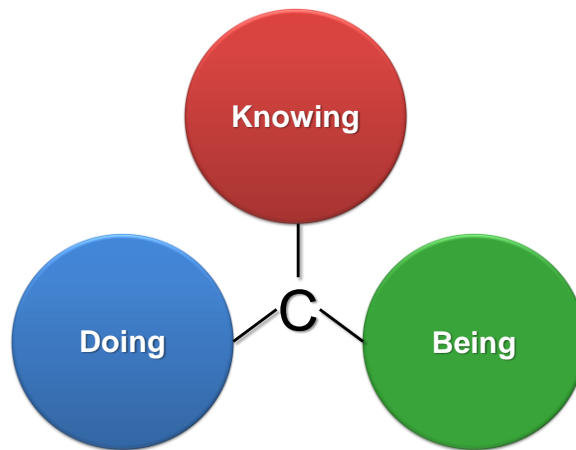


Figure 2.2: General schema of three domains of higher learning
(C stands for Curriculum)

Source: Barnett & Coate (2005:70)

2.4.1. Knowing

Knowledge is a central to the purpose of higher education and a concern of curriculum. The general expectation is, that when students enter university, it is to acquire knowledge, often a highly specialised form of knowledge. Barnett, Parry and Coate (2001:438) state that the “knowledge” domain of the curriculum is based on discipline-specific competencies and those aspects of teaching and learning that develop subject specialists. When debating knowledge in curriculum, the following interrelated epistemological questions often emerge: What is knowledge? How do we acquire knowledge? What do we know? How do we come to know what we know? How do we use knowledge? Are there different forms of knowledge and how do these influence higher education curricula? Barnett and Coate (2005:60) postulate that knowledge in higher education curricula is often regarded as consisting of “a corpus – of ideas, proposition, theories concepts – that stand outside students”, hence presenting “a shopping list” conception of curriculum. Knowledge in this conception of the curriculum is seen as nothing more than a syllabus or a list of subject content to be covered. It implies that knowledge is fixed and static in nature and the teacher should merely transmit knowledge to students who should in turn acquire knowledge, without due consideration be given to engagement. The following rather cynical remark of Rathbun in Wirth and Perkins (2008:11) explains this point well:

A lecture is a process by which the notes of the professor become the notes of the students without passing through the minds of either.

Barnett *et al.* (2001:440-441) emphasise that changes in knowledge fields should be taken into account when considering the epistemology of knowledge domains, namely:

- The structure of the knowledge field might itself be taking new shape, e.g. science-based fields are subject to tacit responsiveness as a result of globalisation and technological development.
- New topics emerge within the field, once again as a result of conditions in the global economy and technological developments.
- New techniques and new forms of realisation emerge within knowledge fields e.g. computers have become a central focus in science and technological fields of study.

In addition to a focus on epistemology of the knowledge domain, the focus should also be on the act of knowing based on the following three reasons provided by Barnett and Coate (2005:59-60):

- Firstly, knowledge is not fixed or static, but “an active, indeed, dynamic component” – it is not merely a list of the essential bits or listing of topics of subject content.
- Knowledge is always in a state of flux, partly because it is socially developed – it comes about through hard effort of human minds and through interaction with others.
- Knowing calls for an act of identity, a claim for ownership and a determination to engage with – it is a personal relationship between the person (student) and the intellectual field in question.

2.4.1.1. Knowledge structures and curriculum

In this section, the work of Bernstein (2000), Michael Barnett (2006), Gamble (2006, 2009), Muller (2009) and Wheelahan (2010, 2011) will be used to explain the knowledge structures related to professional curricula, such as those typically offered by Universities of Technology in South Africa.

2.4.1.1.1. Bernstein’s vertical and horizontal discourses

Bernstein (2000:157) elaborates on Durkheim’s concepts of esoteric/sacred and mundane/profane knowledge by stating that esoteric, conceptual, abstract or codified knowledge is a form of “vertical discourse”, whereas mundane or everyday, *common sense* knowledge is a form of “horizontal discourse”. Each of these discourses has, according to Bernstein (2000:156), its own rules by which it is structured. These rules in turn shape the further development of knowledge within that discourse and the social relations upon which it is based (Bernstein, 2000:157; Wheelahan, 2010:20). Both types of knowledge play an important role in society:

- **Esoteric knowledge** or vertical discourse is theoretical and conceptual knowledge. This form of knowledge is potentially powerful knowledge, since it has the potential to challenge the social distribution of power due to the fact that it has the capacity to transform knowledge and how that knowledge is used, even if this capacity is not realised (Wheelahan, 2010:21). Esoteric knowledge is decontextualised or generalised knowledge indirectly related to a material base, which could result in a “potential discursive gap” arising between this type of knowledge and its material base (Bernstein, 2000:30; Wheelahan, 2010:21). This gap, according to Bernstein (2000:30) could become a site for alternative possibilities, which opens possibilities of the unthinkable, impossible and the not-yet-thought – the reason why this type of knowledge has power and status and why it is regulated by a division of labour and by distributive rules (Wheelahan, 2010:21). This type of knowledge, different from horizontal discourse consists of “specialised symbolic structures of explicit knowledge” organised according to a “coherent, explicit, and systematically principled structure, hierarchically organised” of which integration taking place at the level of meanings (Bernstein, 2000:160).
- **Mundane or everyday knowledge** or horizontal discourse is mostly tacit and context-dependent in nature (Muller, 2009:217; Wheelahan, 2010:20). Bernstein (2000:157) elaborates on the nature of horizontal discourse by stating that it is “likely to be oral, local, context-dependent and specific, tacit, multilayered and contradictory across but not within contexts”. The competencies associated with horizontal discourse is “segmentally related” to the specific context in which it is realised (Bernstein, 2000:159), which implies that it is not necessarily transferable to other contexts except where features of the context and social relations are similar (Wheelahan, 2010:20). This is noteworthy, since it questions the idea of transferable skills which is discussed later in this chapter. These segmentally related knowledge structures of horizontal discourse are also not to “any principle integrating their specific acquisitional ‘knowledge’” (Bernstein, 2000:159).

Wheelahan (2010:150) explains that the role of knowledge in the curriculum is twofold:

- **Firstly** to equip students with theoretical knowledge to be part of society’s conversations and to shape their field of practice by questioning and critiquing the knowledge base of practice and the relationship between knowledge and practice.
- **Secondly**, knowledge in the curriculum should not be presented as the truth because there is a need to recognise the fallibility of our knowledge and the need to revise it in the light of new evidence. Knowledge should therefore not be presented in the

curriculum as “a finished product”, but emphasis should be placed on the way knowledge is produced and shaped.

2.4.1.1.2. Bloom’s dimensions of knowledge

In Bloom and Krathwohl’s original work of 1956 they defined three levels of knowledge, namely: factual, conceptual and procedural. Anderson and Krathwohl (2001) added another level, namely metacognitive. These knowledge dimensions represent a range from concrete (factual) to abstract (metacognitive) as listed below:

- **Factual knowledge** is knowledge that is basic to specific disciplines. This dimension refers to essential facts, terminology, details or elements students must know or be familiar with in order to understand a discipline or solve a problem in it.
- **Conceptual knowledge** is knowledge of classifications, principles, generalisations, theories, models or structures pertinent to a particular disciplinary area.
- **Procedural knowledge** refers to information or knowledge that helps students to do something specific in a discipline, subject or area of study. It refers to methods of inquiry, very specific or finite skills, algorithms, techniques and particular methodologies.
- **Metacognitive knowledge** is the awareness of one’s own cognition and particular cognitive processes. It is strategic or reflective knowledge about how to go about solving problems, cognitive tasks, to include contextual and conditional knowledge and knowledge of self.

2.4.1.1.3. Principled and procedural knowledge in vocational and professional curricula

Based on the distinction between Bernstein’s vertical and horizontal discourses and knowledge structures, Gamble (2006:89) differentiates between two forms of meaning:

- Meaning generated in a “context of thought” or context-independent meanings and;
- Meanings generated in a “context of human action” or context-dependent meanings.

These distinctions relate roughly to abstract, theoretical or “conceptual” (Muller, 2009) knowledge and situated, practical or “contextual” (Muller, 2009) knowledge. In terms of context-independent or “general” knowledge, Gamble (2006:89) also distinguishes between “principled” or “whole” (as the result of a deductive process) and “procedural” or “parts” (as a result of an inductive process). Gamble (2006:91) indicates that context-dependent knowledge is tied to the “real world” of craft and work practices, characterised by human action. Gamble (2006:91) however argues, with reference to the history and practice of craft, that it is also possible in context-dependent or “particular” knowledge to distinguish between

“principled” (“whole”) and “procedural” (“parts”) forms of knowledge (See **Figure 2.3**). She explains that the interplay between “whole” and “parts” related to work practices can be explained as follows:

- “Whole”-“parts”: Using diagrams or drawings, the individual is able to relate to the “whole-parts” relationship without having to use formal reasoning, talking, reading or writing.
- “Parts”-“whole”: In standardised mass production processes, individuals are often required to produce “parts” without necessarily understanding what the end product or “whole” will be (Gamble, 2006:92).

The relationship between this principled and procedural knowledge is used in pedagogical practice when theoretical principles (general knowledge) are taught through “procedural repetition” in order to enhance students’ understanding of the abstract – relating theory to practice (Gamble, 2006:90). Barnett (2006:146) refers to this process as the “pedagogising of disciplinary knowledge” to make it more “readily teachable and learnable” in educational settings. **Figure 2.3** presents Gamble’s conceptual model of forms of knowledge, depicting the relationship between theory and practice in the vocational (and professional) curriculum.

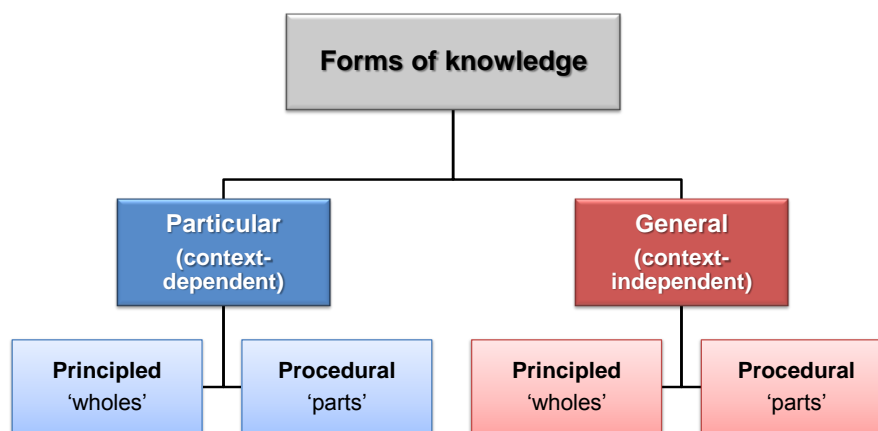


Figure 2.3: Conceptual model of forms of knowledge

Source: Gamble (2006:92)

The relationship between “general” or context-independent and “particular” or context-dependent knowledge is important to consider, since vocational and professional curricula typically offered by Universities of Technology in South Africa contain both types.

Wheelahan (2011:126) states:

The purposes of curriculum differ for academic qualifications on the one hand, and vocational and professional qualifications on the other. Academic qualifications induct students into a body of knowledge organised through academic disciplines, whereas vocational and professional qualifications induct students into fields of practice and their underpinning theoretical knowledge as the basis for their integration and synthesis.

Barnett (2006:152) and Wheelahan (2011:127) explain that vocational curricula must face both ways to context-independent (theoretical, disciplinary or “general”) knowledge and to the field of practice (context-dependent, situated, practical or “particular” knowledge). Vocational and professional curricula must prepare students for employability (workplace) as well as for further study (disciplinary knowledge), which results in a complex relationship between theory on the one hand and practice on the other. With reference to **Figure 2.4**, vocational or professional curricula occupy the space between disciplinary knowledge and the workplace (occupations). These curricula must prepare learners for employability (workplace) as well as for further study (disciplinary knowledge). This is a complex relationship between theory (disciplinary knowledge) on the one hand and practice (workplace/occupation) on the other, and not easy to achieve in vocational and professional curricula. It therefore means that the curriculum must make provision for occupational (career paths) progression, while at the same time providing for academic progression in the academic discipline towards postgraduate studies (See **Figure 2.4**). It is also important to note that academic disciplines do not map onto jobs or occupations in any straightforward manner, but through a process of re-contextualisation (Bernstein, 2000) or transformation (Barnett, 2006:145).

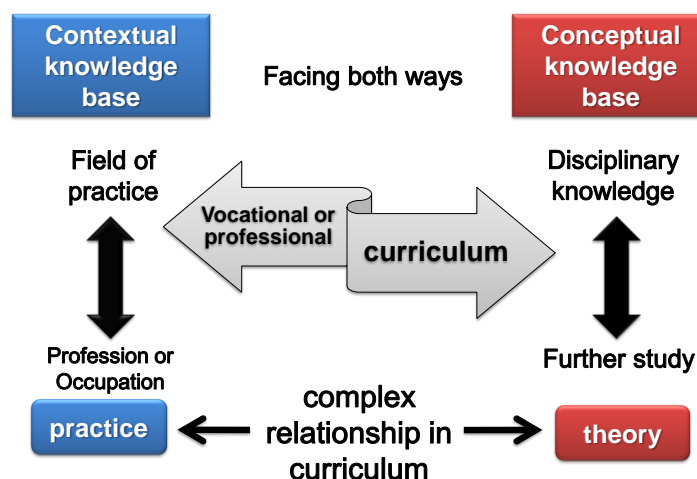


Figure 2.4: Complex relationship between theory and practice
Adapted from: Barnett (2006), Muller, (2009) and Wheelahan (2010)

Barnett (2006:144-152) refers to three concepts of Bernstein (2000), namely classification, recontextualisation and framing.

- **Classification** refers not only to the structures of knowledge and insulation of boundaries between them, but also in pedagogic terms, the way in which they are presented in curriculum.
- **Framing** refers to the way knowledge is selected, sequenced, paced and evaluated in the curriculum. Barnett (2006:149) indicates that in terms of framing of vocational knowledge a practical factor such as time available for teaching and learning often impacts on decisions about the curriculum. Fundamental beliefs and choices in terms of how the subject and its relationship to the wider world (workplace) are perceived by stakeholders also play an important role in the structure and format of the curriculum.
- **Recontextualisation**, a term coined by Bernstein (1990), explains how knowledge that originates in an academic discipline (with its associated scientific discourses) is re-contextualised in a classroom (with its associated pedagogic discourses).

In academic qualifications the relationship between theoretical, disciplinary (context-independent) knowledge and academic pedagogy is familiar and relatively direct (See **Box A** in **Figure 2.5**) consisting of “a single, albeit complex and multiply-determined process of pedagogic recontextualisation”. With reference to **Box B** in **Figure 2.5** depicting the relationship between theoretical, disciplinary (context-independent) knowledge and the vocational pedagogy, in vocational and professional qualifications, it undergoes a two-stage process of re-classificatory re-contextualisation (disciplinary knowledge being re-organised for vocational qualifications), as well as pedagogic re-contextualisation whereby vocational (professional) curriculum is being re-contextualised for vocational pedagogy through processes of selection, simplification, exemplification and paraphrasing (Barnett, 2006:147-148).

In the case of vocational and professional qualifications, the technological and organisational demands of the workplace activities must be taken into account when structuring and teaching the curriculum. It is important to consider two types of context-dependent knowledge forms influenced by technological and organisational demands:

- **Sector-specific technological and organisational problems translated into generic knowledge and skills** often transcend the details of a particular job or particular organisational setting.
- **Situated knowledge** that is usually closely associated with the particular job or occupational task and trapped within the context of its application. This type of context-dependent knowledge has limited significance outside the particular context,

e.g. the knowledge of a taxi driver is mostly relevant to the city/town where he/she is operating, but mostly irrelevant in another city/town (Barnett, 2006:146). Situated knowledge is frequently tacit knowledge (not necessarily codified) and does not easily relate to disciplinary knowledge.

In considering the links between the workplace activity and disciplinary knowledge, we need to call upon a further and different process of re-contextualisation. During this process elements of disciplinary knowledge are carefully selected (constituting a “toolbox” of disciplinary knowledge) and re-structured to relate to the technological and organisational problems encountered in the workplace. Layton (1993:58) in Barnett (2006:147) describes the nature of these problems as follows:

The “problems” which people construct from their experiences do not map neatly on to existing scientific disciplines and pedagogical organizations of knowledge. What is needed for solving a technological problem may have to be drawn from diverse areas of academic science at different levels of abstraction and then synthesised into an effective instrumentality for the basic task at hand.

Barnett (2006:154) indicates that this pedagogic recontextualisation process in vocational curricula involves “boundary crossing” or in Bernstein’s terms crossing of boundaries between “discourses”, which implies not only the crossing of boundaries between bodies of knowledge, but between languages, people and identities. Barnett (2006:155) argues that practical problems such as time available to devote to each discipline in a vocational curriculum adds to the problem, yet the real problem is about what principles or criteria should be used and on which of them the recontextualisation process should be based, e.g. how a subject like Economics for Hotel Management or Biology for Nursing should be structured. Barnett (2006:155) recommends that academics teaching these subjects need:

- Reasonable familiarity with the languages or “discourses” on either side of these bodies of disciplinary knowledge.
- A degree of insight into the scope and nature of the different bodies of disciplinary knowledge related to a particular subject curriculum.
- Understanding of the realities of the workplace settings related to the different bodies of disciplinary knowledge.

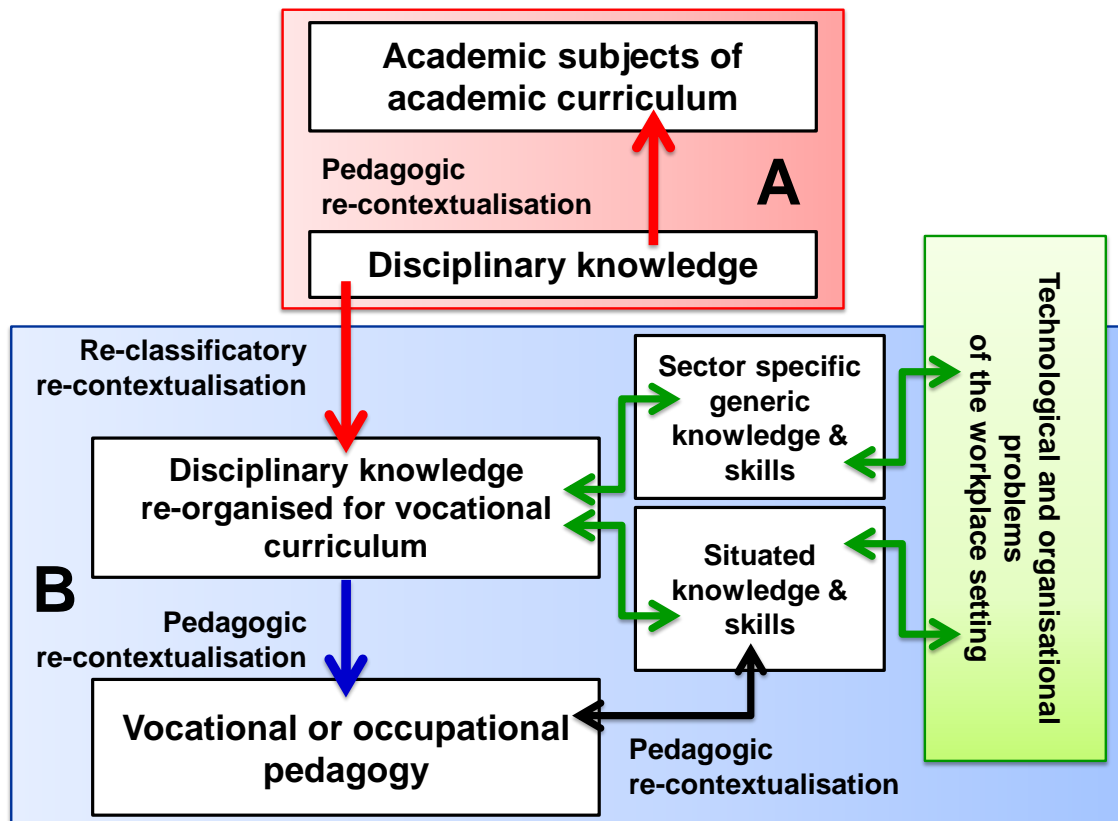


Figure 2.5: Vocational knowledge and pedagogic re-contextualisation
Adapted from: Barnett, M. (2006:148)

2.4.1.1.4. *Displacement of academic knowledge in vocational and professional curricula*

Educational researchers worldwide are concerned about the displacement of disciplinary knowledge in higher education curricula (Wheelahan, 2010; Allais, 2011; Brancaleone & O'Brien, 2011; O'Brien & Brancaleone, 2011). This displacement of knowledge has come about as a response to globalisation, the reinvention of higher education as a tool of economic reconstruction and the move to a market relationship with education as a commodity. The commodification of higher education resulted in a move away from the pursuit of disciplinary knowledge as a social good to focus on the “performative” value of knowledge that would be of direct benefit to employers. This also places emphasis on the quality of the “product of learning” as determined by customer satisfaction. The implications are that many higher education institutions have been influenced by this concept of a market-oriented university of producing and selling knowledge as a commodity. It also places the needs of customers (stakeholders such as employers, industry and students) at the centre of organisational focus and strategy, resulting in:

- Competency-based approaches to pedagogic practice to ensure that students are equipped with a “tool-box” of work-ready skills, and;

- Flexible ways of delivery (modules or units of learning) consisting often of isolated bits of knowledge and assessment practices that are limited to demonstrable and assessable learning outcomes.

The implications of this type of consumer-oriented thinking are that learning has become something to be delivered to students in ready-made packages suitable to the specified needs of students and their potential employers in order for them to simply consume learning. O'Brien and Brancaleone argue that a "technical model of teaching and learning promotes atomistic and mechanistic meanings of knowledge" and that "technical 'know-how' is epitomised by the possession of 'transferable' skills, espoused by learning outcome objectives" (2011:15), hence resulting in what they refer to as a case of "lost knowledge" in the curriculum (2011:18).

Wheelehan (2010:137) argues that competency-based education, as practised in the vocational education and training qualifications in Australia through the delivery of training packages, results in knowledge being tied to workplace tasks and roles within units of competency, hence fundamentally transforming the nature of knowledge by "delocating it from the vertical discourse in which it is classified and relocating it into a horizontal and segmented knowledge structure". She continues by stating that competency-based training:

... severs the relationship between the field of knowledge production and its associated field of reproduction in curriculum by divorcing knowledge from the system of meaning in which it is embedded and the way this is distinguished from other areas of knowledge, and by tying it to the specific. This changes the nature of knowledge and the processes by which it is acquired. (Wheelehan, 2010:137).

The result of this delocation or displacement of disciplinary knowledge from the roots of knowledge production, as Wheelahan (2010:137) explains, is that students are provided with access **not** to disciplinary knowledge structures that give meaning, but to contextually specific applications of disciplinary knowledge which are not the principles but the products of the discipline. With a focus mainly on specific contextualised knowledge, students are unable to relate the principles of the disciplinary knowledge structures to the specific context, which in critical realist terms denies students access to "the domain of the real (of generative mechanisms) and the domain of the actual (where events take place) with dominant focus on the domain of the empirical (that which is observable)", according to Wheelahan (2010:138). Wheelahan (2010:137-139) also argues that teaching these context-dependent observable outcomes in competency-based education narrows the notion of skill to be positivist, instrumentalist, atomistic and tied to specific tasks and roles, which inhibits the holistic development of students in the context of the occupation or profession. In addition, it also excludes students from forming an identity as part of that profession or occupation.

Wheelahan (2010:139) concludes by stating:

Teaching and learning must engage the real and the actual not just the empirical, because it is the only way to generate a varying and contextually sensitive performance in a variety of contexts, and to build capacity for dealing with the future.

This is why the aims of education and training should be to develop the knowledge, skills and capabilities of workers and citizens in broad terms.

2.4.1.1.5. Modes of knowledge production

In the past, knowledge and knowledge production were regarded mainly as the domain of universities. Yet, in a knowledge economy this situation has changed rapidly with knowledge being regarded as a central factor for productivity and the performance of enterprises and their employees, impacting on organisational capacity, innovation and creativity. Gibbons (2000:19) describes two modes of knowledge production:

- In **Mode 1**, problems are set and solved in the context governed by the largely academic interests of a specific community. Mode 1 knowledge production is mainly disciplinary in nature, characterised by homogeneity and supported by a hierarchical type organisational structure.
- By contrast, in **Mode 2**, knowledge is carried out in a context of application. Mode 2 knowledge production is transdisciplinary in nature, characterised by heterogeneity and based on a more heterarchical and transient type organisational structure. Mode 2 is also in contrast to Mode 1 type knowledge production. It is more socially accountable and reflexive in nature and includes a wider, more temporary and heterogeneous set of practitioners collaborating on a problem.

“Transdisciplinary” refers, according to Kreber (2009:25), to research that is directed at problems that go beyond, or transcend the boundaries of particular disciplines or subject areas. It relates closely to complex problems in real life that demand different forms of expertise and skill sets than those typically associated with academic study of a particular discipline. Kreber (2009:25) argues that unless higher education institutions pay close attention to transdisciplinary knowledge production, students may not be adequately prepared for the demands of the knowledge society, hence the importance of designing HE curricula that are relevant to the world of work.

As a result of these changes in knowledge production, universities have expanded their basic research activities to include more applied research of greater relevance to industry, and to diffuse technical knowledge and provide technical support to industry. Lundvall (2004) and others argue that due to the pace at which the knowledge frontier is moving, it is perhaps more fitting to refer to it as the “learning economy” instead of the “knowledge economy”.

Bramwell and Wolfe (2005:6) explain that the interaction of enterprises with universities, as well as suppliers and customers, has become a critical condition for successful innovation and knowledge production, because the interaction between scientific knowledge and technical innovation is characterised by complex feedback loops between knowledge producers and users. According to these researchers, innovation is also a social process of “learning-through-interacting”, which contributes to the development of new skills and competencies rather than simply accessing information of codified scientific knowledge.

Barnett (2004:251), however, argues in favour of Mode 3 knowledge which he calls a “knowing-in-and-with-uncertainty”. Mode 3 knowledge goes beyond an epistemological task of merely focusing on knowledge and on knowing; it is about embracing an ontological task of enabling individuals to prosper amid supercomplexity by learning to live with uncertainty.

Jackson (2010:4) suggests that the notion of personal knowledge (Eraut, 2009a), based on the following forms of knowledge, provides a more appropriate view of knowledge for work and professional practice:

- Codified knowledge in the form(s) in which the person uses it.
- Know-how in the form of skills and practices.
- Personal understandings of people and situations.
- Accumulated memories of cases and episodic events (Eraut, 2000, 2004).
- Other aspects of personal expertise, practical wisdom and tacit knowledge.
- Self-knowledge, attitudes, values and emotions.

The concept of Mode 3 knowledge relates to Jackson’s lifewide concept of learning, education and personal development outlined in more detail at the end of this section.

2.4.2. Doing

Toner (2011:11) states that “the general concept of skills refers to productive assets of the workforce that are acquired through learning activities”. He continues by stating that many analytical studies on the concept of skill do not concur on a robust and accepted definition and classification of skills beyond this general characterisation. Toner (2011:11) qualifies his view by indicating that the following remarks are representative of the conclusion of many analytical studies with regard to the concept of skill:

The notion of “skill” has been one of the most elusive and hardest to-define concepts in labor economics” (Lafer, 2002:75); [Despite its] central importance in discussions of labour market change...an appropriate and robust definition of skill has proven elusive. It seems that skill is a more complex and abstract concept or idea than current approaches have been able to capture” (Esposito, 2008:100-01).

Winch (2011:89-90, 179-184) distinguishes between the concept of skill as depicted in the French *savoir-faire* (know-how or practical knowledge), *aptitude* (broadly based know-how) and *habileté* (narrowly based know-how) and the German terms: *fähigkeit* (those abilities which refer to the way that one conducts oneself in the context of a range of activities in other words methodological, social and personal abilities) and *fertigkeit* (narrowly defined skill, knack or functional skills necessary to perform a task). A *berufliche Fähigkeit*, on the other hand, is an occupational capacity which integrates all the knowledge, practical wisdom and understanding necessary to practice an occupation (Hanf, 2009 in Winch, 2011:90). In most cases, Winch (2011:90) indicates that the concept of skill is mainly a type of practical ability or know-how associated with a narrow range of activities, yet over time the notion of skill has been expanded to mental and even social skills. This view is in keeping with the view expressed by Mounier in an earlier paper on *The Three Logics Skill* (2001). Mounier (2001:28) defines *logic* as a social force, acting in a given direction that is the result of interaction between social actors, institutions/organisations and social values and norms. Mounier (2001:28) defines the three logics of skills as follows:

- **Technical skills** are associated with the exercise of labour power. It is determined by equipment and productive methods to be performed as particular tasks.
- **Cognitive skills** are related to the level and kind of education and training. These form a foundation of general skills obtained on the basis of general citizenship (e.g. literacy, numeracy, general educational competence).
- **Behavioural skills** reflect the personal qualities of a person to perform in the context of particular authority relations on the job (e.g. usually subordinate roles in the production process or the provision of a particular service).

Winch (2011:91) continues by stating that the term *skill* is also associated in contemporary English with the term *competence*, but the relationship between these two terms are described as follows:

In everyday usage, in the most simple form, the term “skill” is related to task performance. However, in work situations, it has undergone “conceptual inflation” and now includes not only non-manual task-related abilities but also character attributes, virtues and wisdom necessary to be able to know how to carry out a task in real workplace conditions. The term “competence” is used sometimes synonymously with “skill” but more often to signify either a threshold level of performance of a skill in workplace conditions or a bundle of skills which may be applied to a complex type of task.

The main characteristics of the Anglo-Saxon concept of the vocational skills are that:

- It is understood as the attributes or property of an individual.
- It is associated with the performance of discrete tasks.

- It is associated with physical and manual dexterity and not necessarily associated with a particular knowledge base.
- It is not directly related to the possession of a qualification, as they are not required for entry into many vocational occupations and nor are wage levels tied to the possession of qualifications. (Clarke & Winch, 2006:261 in Toner, 2011:12-13).

As indicated above, there appears to be substantial variation in the conception of skill across many countries.

In essence, Eraut (2008:12) states: “Skills are defined in terms of knowing how to do things; and nobody will accept a purely textual account as evidence of a skill.” For this reason, many skills are regarded as archetypal examples of tacit knowledge, e.g. how to ride a bicycle or how to swim – these are skills that can be explicitly demonstrated, yet difficult to explain and even more difficult to disseminate by formal teaching only. Since many work processes today involve a combination of formal, codified knowledge and skills of many kinds, there is a tendency to expand the range of skills to include technical skills, generic skills, transferable skills or employability skills (see **Table 2.1** for more information). The scope of these skills typically includes communication (verbal and written), numeracy, information technology, teamwork, problem solving and learning to learn. Associated with these skills are also attributes such as: leadership, innovation, motivation, discipline, self-confidence, self awareness, networking, entrepreneurship and capacity to embrace change. It is appropriate to refer to the typology of learning trajectories of Eraut (2008:5) in **Table 2.1** in this regard.

Table 2.1: Eraut's (2009a) typology of learning trajectories

Learning trajectory	
Task performance	<ul style="list-style-type: none"> • Speed and fluency • Complexity of tasks and problems • Range of skills required • Communication with a wide range of people • Collaborative work
Awareness and understanding	<ul style="list-style-type: none"> • Other people: colleagues, customers, managers, etc. • Contexts and situations • One's own organization • Problems and risks • Priorities and strategic issues • Value issues
Personal development	<ul style="list-style-type: none"> • Self evaluation • Self management • Handling emotions • Building and sustaining relationships • Disposition to attend to other perspectives • Disposition to consult and work with others • Disposition to learn and improve one's practice • Accessing relevant knowledge and expertise • Ability to learn from experience
Teamwork	<ul style="list-style-type: none"> • Collaborative work • Facilitating social relations • Joint planning and problem solving • Ability to engage in and promote mutual learning
Role performance	<ul style="list-style-type: none"> • Prioritisation • Range of responsibility • Supporting other people's learning • Leadership • Accountability • Supervisory role • Delegation • Handling ethical issues • Coping with unexpected problems • Crisis management • Keeping up-to-date
Academic knowledge and skills	<ul style="list-style-type: none"> • Use of evidence and argument • Accessing formal knowledge • Research-based practice • Theoretical thinking • Knowing what you might need to know • Using knowledge resources (human, paper-based, electronic) • Learning how to use relevant theory (in a range of practical situations)
Decision making and problem solving	<ul style="list-style-type: none"> • When to seek expert help • Dealing with complexity • Group decision making • Problem analysis • Formulating and evaluating options • Managing the process within an appropriate timescale • Decision making under pressure
Judgment	<ul style="list-style-type: none"> • Quality of performance, output and outcomes • Priorities • Value issues • Levels of risk

Source: Eraut (2009a:5)

Eraut (2009a:4-5) explains that based on his research of professional learning in the early phases of careers pertaining to the sectors of business, engineering and healthcare with a particular focus on precisely what is being learned, he and his colleagues came to the conclusion that the word *competence* are not appropriate, “because competences are typically defined in binary terms and often become dated”. Based on the developmental, dynamic and progressive nature of these types of skills, it was decided to refer to this type of knowledge as a “learning trajectory” and to adopt a lifelong learning perspective.

Barnett and Coate (2005:94) refer to *doing* in the curriculum as the action domain which is not formed through a simple process of identifying skills related to the subject areas and the world of work, but represents a complex relationship between the domain of action and the dimensions of knowledge and self. Bernstein (2000:42) regards competences as “practical accomplishments” with emphasis on its procedural nature, inherent creativity and self-regulating potential. It therefore raises questions such as:

- To what extent is there an overlap among the domains of knowledge, action and self?
- Can skills be developed in isolation from the domains of “knowing” and “doing”?
- How do these domains of “knowing”, “doing” and “being” defined by Barnett and Coate (2005) relate to graduate attributes and capabilities?

Skills are a key component of contemporary curricula and imply that students engage with the curriculum by **acting** out the practices of a discipline. Action in a curriculum might be determined by the nature and demands of the subject areas; might be transferable across subject areas or might even be the tasks that students would be required to perform in the world of work. If curricula are developed in a fragmented manner without due consideration to the integration between the dimensions of knowing, acting and being, then the action domain would take on a performative character as pointed out by Barnett and Coate (2005:105). Barnett and Coate (2005:98) indicate that skills are often tacit in nature, yet by explicitly stating these skills as learning outcomes in the curriculum, the tacit becomes more explicit. It is also important to note that each discipline or field of knowing has its own practices, which call for skills that the student is expected to develop such as:

- **Subject-based skills:** These are important in defining learning outcomes – tacit notions of skills are embedded within and shaped by disciplines and institutions.
- **Transferable (generic) skills:** Although Barnett and Coate (2005:94) acknowledge that these transferable or generic skills typically cross subject boundaries, Barnett (2004:247) argues that a narrow focus on generic skills in the context of a competency-based approach to education, is a “cul-de-sac” and that “the way forward lies in construing and enacting a pedagogy for human being” – in other

words, it calls for “an ontological turn” in the curriculum. This implies a pertinent focus on developing graduate capabilities and not merely workplace competencies.

- **Employer-related skills:** These skills are related to the demands of industry, the professions and external stakeholders. Students are required to act independently as a professional in a variety of different professional contexts.

The notion of generic competencies and employability skills in relation to the demands of the world of work are discussed in more detail later in this chapter.

2.4.3 Being

Knowledge (with the emphasis on active knowing) and skills (with the emphasis on action and acting) are important elements of an engaged curriculum, but these two elements cannot adequately prepare students for a world of uncertainty, unless the third element of being (self or becoming) is added. Barnett and Coate (2005:110) argue that “forms of knowing produce forms of being” and students are invited into a way of *being* (a way of life) through engagement with the disciplinary knowledge and practices of a specific trade or occupation. Students are either able or unable to take on certain kinds of knowledge, given their disposition; in other words “the self, the being, makes possible the knowing” (Barnett & Coate, 2005:110).

The idea of *being*, however, is particularly problematic as it is not a term that has common usage, nor is the term itself clear or does it fit in with the dominant discourse in higher education of instrumentalism and performativity. Yet, Barnett and Coate (2005:109) qualify why an “ontological turn” in higher education curriculum is important by stating:

Students cannot be mere assemblies of competencies or reservoirs of knowledge. Any competencies or knowledge that they may obtain are acquired by a particular *person* [italics in original text].

Two dimensions of human being, namely self-drive or self-motivation and self-critique are important aspects of authentic learning in higher education. “In the end, learning of any value has to be the students’ own learning”, according to Barnett and Coate (2005:115) who emphasise that students must engage with learning not simply as a set of learning outcomes, but as learning for life. Barnett (2006:61) concludes by stating:

It is surely now evident that “graduate attributes” should not primarily be construed as sets of skills or even knowledges. What is required are certain kinds of human dispositions and qualities. Qualities that a world of incessant unpredictability and challengeability calls for would include qualities of courage, resilience, fortitude and quietness. Dispositions that such a world calls for include an orientation towards self-change, engagement with the world, inquisitiveness, and a will to communicate ...

The main educational challenge in a world of uncertainty is that neither of knowledge nor of skills but of *being*.

2.4.4. A lifewide curriculum for engaged learning

Jackson (2010:4) argues that the main problem with traditional higher education as a vehicle for preparing students for the complexities of a changing world is that “it seems to take a narrow view of what learning and knowledge is” and that higher education is “pre-occupied with codified knowledge and with its utilisation by learners in abstract hypothetical problem solving”. Handling complex problem solving in this way is constructive, but it is also important to gain a better understanding of the scope, for the sources of knowledge defined by Eraut (2009a) in Jackson (2010:4) which learners draw upon in a lifewide learning context:

- Codified knowledge in the form(s) in which the person uses it.
- Know-how in the form of skills and practices.
- Personal understandings of people and situations.
- Accumulated memories of cases and episodic events.
- Other aspects of personal expertise, practical wisdom and tacit knowledge.
- Self-knowledge, attitudes, values and emotions.

Hence, by expanding the schema of the domains of higher learning of Barnett and Coate (2005) as described above, Jackson (2011a:101) suggests an imaginative lifewide curriculum as a holistic, yet alternative way of engaging students intellectually, practically and emotionally – head, body, heart and soul. Beard and Jackson (2011:39) emphasise that the value of a lifewide concept of higher education “lies in its capacity to embrace and celebrate a richer and more holistic view of learning and personal development and in its ability to enable learners to see that their own development is accomplished through what they do in the many spaces and places that make up their lives”.

A lifewide curriculum is different, yet related to lifelong learning – whereas lifelong learning relates to learning through the lifespan of an individual, lifewide learning is “learning in different spaces simultaneously” and across an individual’s life at any moment in time (Barnett, 2011:22, 24). It thus implies that an individual’s journey through life can be seen as involving both lifelong and lifewide learning, in other words throughout his lifespan (lifelong learning) while simultaneously occupying many learning spaces (lifewide learning). Yet, the relationship between lifelong and lifewide learning is even more complex, since these learning experiences themselves will not only be associated with different timeframes, but

also with forms and spaces of learning that have different rhythms, many of these taking place beyond the boundaries of disciplines and with the support of digital learning. Barnett (2011:25) argues that as opposed to earlier times when students could take “time out” of the mainstream of society’s structures to obtain an undergraduate qualification, presently university education is a set of learning and developmental spaces in addition to those of the wider world in which the student is already immersed. This is continued while he/she is studying at the university. As Pollard (2003:178) in Barnett (2011:31) describes it:

... higher education courses have to become more meaningful in terms of students’ lives-as-lived and in relation to development through lifecourse.

The challenge to higher education is outlined in this statement on integrated learning of the American Association of American Colleges and Universities (2009:1) in Jackson (2011a:109):

Developing students’ ability to integrate and apply learning [in different contexts] is an important piece of what makes higher education relevant to today’s world. On any given day newspaper headlines point to the need for graduates who are sophisticated in their thinking, able to discern complexity in situations, and motivated to continuously seek better, more responsible, solutions to problems encountered in work, in life and in society ... The current context also requires graduates who are creative; who can anticipate the not-yet-known, and negotiate rapid technological, cultural, and global shifts.

In the United States of America, according to Jackson (2011a:110-112) the integrative learning movement in higher education has grown for a number of reasons, such as:

- The desire to create greater coherence for learning of curricular experiences that appear to be highly fragmentary.
- A concern to make academic learning more relevant and connected to the real world, in other words dealing with real-world type problems, unscripted and sufficiently broad, to require multiple areas of knowledge and multiple modes of inquiry, offering multiple solutions and benefitting from multiple perspectives.
- An appreciation of the challenges of the modern world and the need to develop students’ capabilities for and commitment to lifelong learning and to the process of continual renewal, adaptation and reinvention that their working lives will necessitate.
- An appreciation of the pedagogies and learning capabilities required of a trans-disciplinary (Mode 3) world that must transcend discipline-only contexts, and in addition, with a recognition that there has to be a connection between theory and practice toward a deepened understanding.
- An attempt to address the issue of emergence in complex adaptive social systems, in other words the process by which global-level and local-level structures and processes interact in unpredictable ways.

- The need to make better use of available resources in higher education to contribute to a more holistic approach to educating students as well as, based on Jackson's own contribution to this list, to use resources for learning in environments outside the university to which students have access.

To this end, Jackson (2011a:116) proposes a lifewide curriculum map consisting of an academic curriculum, alongside co- and extra-curricular activities to encourage, recognise and value informal and formal learning – all of these gained through experiences that are additional to the academic programme. This initiative fits in well with the model of engaged learning proposed by Hodge, Baxter Magoldi and Haynes (2009). These authors report on an engaged learning model at the University of Miami which is grounded in the constructive-developmental model of Piaget (1950) and premised on Mezirow's work (2000) on transformative learning, and within the context of American liberal education. The model is underpinned by principles and practices that lead students steadily toward self-authorship in which aspects of epistemological, interpersonal and intrapersonal maturity are integrated. These authors argue that self-authorship enables higher education students to evaluate information critically, form their own judgements and collaborate with others, preparing them to act wisely by adopting complex meaning-making structures in epistemological, interpersonal and intrapersonal dimensions of their lives.

2.4.5 Conclusion

It is evident that the schema of Barnett and Coate (2005) on domains of higher learning provides a thought-provoking framework for further discussion on graduate attributes in higher education. This conceptual framework accommodates the multidimensional and complex nature of graduate attributes adequately, yet makes provision for future initiatives to be explored such as the lifewide curriculum (Jackson, 2010) and the model of engaged learning (Hodge *et al.*, 2009).

In the next section, the focus shifts towards an investigation into the alleged mismatch between higher education and the world of work.

Section 2: An alleged mismatch Higher Education and the World of Work

2.5. Challenges of the 21st century related to higher education

Fullan and Scott (2009: ix) state that there is no doubt that the pressure for change from sources outside higher education is mounting and it is important to understand the context of change. “This relates not only to how universities keep in step with a rapidly changing environment but, more importantly, how universities as knowledge organisations evolve and change within this environment” (Fullan & Scott, 2009:x). Generally these forces of change as described by Fullan and Scott (2009) resulted in a shift from industrial to post-industrial society; from Fordism to post-Fordism; from a low-skill to high-skill economy (Brown, 1999; OECD, 2001; Ananiadou & Claro, 2009) as well as from the use of telecommunication technology to the establishment of the information and network society (Castells, 2000). The modern workplace has new forms of work organisation that are more flexible and process-based to meet a higher degree of competitiveness, flexibility, enhanced quality, reduced life-time of products and services, and an ability to quickly respond to customers’ needs. These new forms of work organisation require a team-based approach of multi-skilled employees who are self-directed, responsible, performance-oriented and highly trained. In addition, the information and communication technology is an integral part of today’s workplace and society, hence a significant driver of the knowledge-based society and global economy.

In the analysis of Brown and Lauder (1996) in Kruss (2004:677) they make the critical point that, instead of guaranteeing full “employment”, the role of government now is to invest in education and training to enable people to become fully “employable”. They distinguish between the goal of *employment*, where skills are linked to specific occupations and economic trajectories, and *employability*, where the focus is on skills formation to develop a highly educated workforce that is equipped for greater occupational mobility and flexible work patterns. The emphasis in this section is on the latter role of the state and how it impacts on higher education.

2.5.1. Economic growth and human capital

The connection between higher education and the economy of a country is long-standing, based on the notion that “knowledge”, as embodied in human beings (as “human capital”) and in technology, are central to economic development. The human capital theory (Becker, 1975) is based on the perspective of man as *homo oeconomicus* or “economic man” (the term “economic man” was used for the first time in the late nineteenth century by critics of

John Stuart Mill's work on political economy). Teichler (2009:195) argues that "the relationships between higher education and the world of work are strongly based on a reinforcement of the norms of the individual as *homo oeconomicus* (in the economic version) or status seeker [*homo sociologicus*] (in the sociological version)". The human capital theory has its origins in neoclassical economics in the second half of the nineteenth century (Le Grange, 2011:1040) and it first emerged in modern form in the early 1960s when TW Schultz and later others such as Becker (1975) expanded on the idea that investment in education is the most important determinant of economic growth. According to Olssen, Codd and O'Neill (2004:148) in Le Grange (2011:1040) the main propositions of the human capital theory are that the primary function of (higher) education is to enhance the cognitive capacity, skills and competencies of an individual, which in turn increases productivity; and an increase in productivity tends to increase an individual's earnings, which becomes a measure of human capital. Le Grange (2011:1041) calls for critical examination of this belief, as proposed by human capital theorists, that investment in education has as its main purpose economic return.

This perception of higher education as "an industry for enhancing national competitiveness and as a lucrative service that can be sold in the global marketplace" is negatively impacting on how higher education has been perceived over the centuries as institutions for public good (Naidoo, 2003:250). Le Grange (2011:1041) states that "from a human capitalist perspective education (in this instance higher education) is no longer enacted in pursuit of truth but of performativity". Morley (2001:131) argues that higher education is engulfed in a process of commodification and skills, as one of the main ingredients of human capital is regarded as a commodity to be acquired. Morley (2001:132) and Green (2011:7) suggest that the value of skill acquisition is decontextualised to that of employability, disregarding the social structures such as gender, race, social class and disability that interact with labour market opportunities.

Although these arguments should not be ignored, Yorke (2006:4) argues that the notion of employability and its connection to employability skills have more "face validity for politicians to abandon it", which is evident from the many reports of government agencies worldwide over the past 25 years promoting employability skills. It is therefore important to consider these questions: How can higher education balance these tensions in preparing graduates for the world of work? Should the focus be predominantly on employability skills?

2.5.2. Globalisation and the knowledge economy

Globalisation has become a powerful and dynamic force in the present world, impacting significantly on higher education discourse. Van Niekerk and Venter (2002:100) make it clear that globalisation is not an easily definable term. It depends on the perspective (economic, social, cultural or political) from which one wishes to discuss the concept, the theoretical framework (neoliberal economic perspective, critical theory or postmodernism) from which the researcher enters into the discussion, as well as the central point of the debate, for example: convergence/divergence; homogenisation/heterogenisation or local/global issues. Jarvis (1999:249) and Sassen (1991) in Rizvi (2006) indicate that globalisation is essentially an economic phenomenon, while McDonald and Van der Horst (2007:3), Yan (2003:271), as well as Van Niekerk and Venter (2002:100) state that an increasing number of attempts to develop explanations of globalisation, highlight the complex intersection between a multiplicity of driving forces, embracing economic, technological, social, cultural and political change.

Stromquist and Monkman (2000:4-5) in Van Niekerk and Venter (2002:100) explain these driving forces as follows:

- On an **economic** level the world is integrated into one economic space favouring free trade, private enterprise, foreign investment with ample emphasis on sub-contracting and the development of high-value added products.
- On a **social** level, new patterns of consumption and lifestyles influence family relations, migration patterns and social organisation.
- On a **cultural** level, the flow of people, goods, information and images reflects the influence of communication processes and thus, new identities and imaginaries are taking shape.
- On a **political** level, there is emphasis on pluralistic systems, multiparty democracy, free elections, independent judiciaries and human rights.

The economic, social, cultural or political influences of globalisation on countries in the 21st century have given rise to a new type of economy, the “**knowledge economy**” which is based on the premise that in order to compete successfully in the global context, it is necessary to move away from raw material production and manual work in developed countries (Naidoo, 2003:249). Johnson (2005:3) contends that “it would seem that the more knowledge a country can usefully produce and trade, the higher its chances of economic success”. This “knowledge economy” encourages the development of high value-added products and services, which in turn depends on scientific and technological knowledge and

continual improvement and innovation. These concepts of “knowledge economy” and “knowledge worker” are based on the view that knowledge and information, as well as technological change and innovation are key drivers of this economy.

While there appears to be an ongoing debate about the definition and nature of “knowledge economy”, the definition of “knowledge worker” is equally challenging. At the heart of all the suggested definitions lies the idea that the knowledge workers are participating in the utilisation and creation of knowledge. These knowledge workers can be people working in knowledge-based sectors of the economy or workers who have specific skills and competencies (OECD, 2001:107). Knowledge workers should have a high level of formal education and workplace competencies such as teamwork and leadership capabilities, intra-personal skills such as motivation and attitude, an ability to learn, problem-solving skills, effective communication and analytical skills, as well as technological and ICT skills (Stasz, 2000 in OECD, 2001:106).

Duderstadt (2009:347) states:

We have entered an era in which educated people, the knowledge they produce, and the innovation and entrepreneurial skills they possess have become the keys to economic prosperity, public health, national security, and social well-being.

Ásgeirsdóttir (2005) in Johnson (2005) indicates that the knowledge economy is based on four key pillars, namely: innovation, the development of new technology, human capital and enterprise dynamics or the rise and fall of newly created enterprises. These are briefly described here:

- **Innovation** and the expenditure on research and development has become a key competitive factor in many countries, forcing a faster cycle time and requiring enterprises to seek new ways to acquire innovation, which resulted in links with universities, alliances with each other or through mergers and acquisitions.
- The **development of new technologies** impact on the economic growth of countries worldwide.
- **Human capital** in terms of knowledge, skills and competences instilled in knowledge workers is an important aspects of the knowledge economy for mainly two reasons:
 - There appears to be an established relationship between human capital and labour productivity which implies that human capital is regarded as a significant determinant of growth.
 - Highly qualified and skilled knowledge workers are needed to utilise the potential of innovative and new technologies.

- The **dynamics in enterprise turnover** reflects, according to Ásgeirsdóttir (2005), the ability of countries to expand the boundaries of economic activity, shift resources and adjust the structure of production to meet consumers' changing needs.

2.5.3. International perspective: Higher education responding to needs of the knowledge economy

The emergency of the knowledge economy has ushered in a wide-ranging debate about the relationship between higher education and the world of work, the changing nature of the workplace, the demand for a highly skilled workforce and the demand for higher levels of competencies. These include the ability to use information and communication technologies (ICT), to solve complex problems, to work in teams, to be innovative and to undertake continuous learning (OECD, 2001:100). Carnoy (1994) in Naidoo (2003:249) and Duderstadt (2009:350) argue that higher education has been positioned by many countries as a crucial site for the production, dissemination and transfer of economically productive knowledge, innovation and technology. The Spellings Commission compiled on behalf of the Department of Education of the United States of America (2006) states in its report that:

... (the) world is becoming tougher, more competitive, less forgiving of wasted resources and squandered opportunities. In tomorrow's world a nation's wealth will derive from its capacity to educate, attract, and retain citizens who are able to work smarter and learn faster – making educational achievement ever more important both for individuals and for society at large (2006:ix).

The report (USA, Department of Education, 2006) refers to the unpreparedness of students entering the world of work by stating:

Employers report repeatedly that many new graduates they hire are not prepared to work, lacking the critical thinking, writing and problem-solving skills needed in today's workplaces. In addition, business and government leaders have repeatedly and urgently called for workers at all stages of life to continually upgrade their academic and practical skills (2006:3).

It also describes the demands of a changing workplace and the importance of lifelong learning as follows:

The transformation of the world economy increasingly demands a more highly educated workforce with postsecondary skills and credentials. Ninety percent of the fastest-growing jobs in the new information and service economy will require some postsecondary education. Job categories that require only on-the-job training are expected to see the greatest decline. In high-demand fields, the value of postsecondary credentials and skills is likely to rise. The Department of Labor projects, for instance, that by 2014 there will be close to four million new job openings combined in health care, education, and computer and mathematical sciences (2006:6).

Employers complain that many college graduates are not prepared for the workplace and lack the new set of skills necessary for successful employment and continuous career development (2006:12).

The context of the challenges of the knowledge-driven economy is of key importance as it relates not only to how universities should keep up with a rapidly changing environment, but more importantly, according to Fullan and Scott (2009:x) “how universities as knowledge organizations evolve and change within this environment”. Previously higher education was often viewed as an expensive and inefficient public service that largely benefited the wealthy and privileged. Now it is generally understood to make a necessary contribution, in concert with other factors, to the success of national efforts to boost economic growth and prosperity through its primary purposes of: research, teaching and external service or engagement.

Internationally, the changing needs of the world of work and expectations of graduates entering the workplace on the one hand, and what higher education delivers on the other, stimulated discussions regarding core competencies, generic, transferable or key skills and capabilities, and the importance of lifelong learning. These discussions are reflected in reports such as the UNESCO’s *World Declaration on Higher Education for the 21st Century* (1998), DeSeCo project of the Organisation for Economic Co-operation and Development (OECD) (2002), European Round Table of Industrialists (1995, 1997, 1998), the findings and recommendations of the Spellings Commission in the United States (2006), the REFLEX project (2007), Careers after Higher Education (CHEERS) study (Teichler, 2009), the Confederation of British Industry report on *Future Fit: Preparing graduates for the world of work* (2009), the Scottish Higher Education Enhancement Committee (SHEEC) reports on *Graduates for the 21st century* (2010) and those of the Quality Assurance Agency for Higher Education of the United Kingdom (2007) and others. Three of the major European projects exploring issues related to the relationship between higher education and the world of work, as well as the development of generic competencies or employability skills will briefly be discussed here. The objective is to set the background for further exploration of the meta-concepts of graduate attributes, such as: responding to the needs of a changing world, employability, lifelong learning and social responsibility, which is to follow in the next section of this chapter.

2.5.3.1. Research into Employment and Professional Flexibility (REFLEX) project¹

The 2005 report, *The Flexible Professional in the Knowledge Society*, presents findings of a survey of 70,000 graduates from 15 European countries and Japan about their qualifications and employment, five years after leaving higher education (Allen & Van der Velden, 2007:2). REFLEX was a joint collaborative project including 16 countries, namely: Austria, Belgium-Flanders, Czech Republic, Estonia, Finland, France, Germany, Italy, Japan, the Netherlands,

¹ Since the scope of the REFLEX project exceeds and differs somewhat from the purpose and scope of this chapter, only the relevant aspects from the REFLEX project will be discussed.

Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. The project investigated the skills needed by graduates to function adequately in the modern knowledge society; the role higher education institutions perform in helping students develop these skills; the tensions that arise as graduates, employers and higher education strive to meet these objectives, and how tensions that arise could be addressed.

In recent years, according to Allen and Van der Velden (2007:10), three major trends have impacted on higher education, namely:

- An increased emphasis has been placed on education and training, which is regarded by many as the most important factor affecting economic growth.
- The term knowledge society has been coined to indicate not only the massification of higher education or of knowledge-intensive or high-technology sectors of the economy, but rather to indicate the influence of knowledge on work organisation.
- The demarcation lines between work, leisure time, education and care have become blurred, leading to increased mobility and flexibility patterns, and to an overall focus on employability. This trend is related to the internationalisation and globalisation of product and labour markets and their impact on higher education.

Although higher education graduates have long been expected to become experts in their own professional domain, the dynamic nature of the labour market and increased mobility require graduates to have a higher degree of flexibility and generic competencies to ensure employability in a range of situations over their entire career (Allen & Van der Velden, 2007:11-13). Graduates generally strive for life goals that are much broader than just the world of work. These goals will differ from person to person and may also change over time, yet all graduates strive to build a meaningful life for themselves. For some graduates, participation in higher education is a primarily an instrumental investment to allow them to realise their personal and career goals, while for others it may be an experience to be cherished in itself (Allen & Van der Velden, 2005:8).

The overall aim of REFLEX project was to make a contribution to assessing the demands that the modern knowledge society places on higher education graduates, and the degree to which higher education is responding to these needs by equipping students with the competencies needed to meet these demands. The project was undertaken to investigate five focus areas of employability, namely:

- Firstly, to provide a more detailed description of the demands that the modern knowledge society places on higher education graduates, while also considering other demands such as the increased emphasis on education and training, the

increasing volatility of labour market processes and the increased internationalisation and globalisation of markets.

- Secondly, to assess the degree to which higher education institutions in Europe were responding to the need of equipping graduates with the competencies needed to respond to these demands.
- Thirdly, the project considered how these demands of the knowledge society and the graduates' ability to realise them was influenced by the way in which work is organised in the world of work.
- The fourth focus area of the project was to pay explicit attention to the goals, aims and orientation of graduates within the context of the world of work; and
- Lastly, to look at the period of transition from higher education to work and occupational outcomes.

The project used different research instruments to gather the data, namely: an investigation to highlight the main structural and institutional factors that shape the relation between higher education and work in nine European countries were undertaken; a qualitative study on graduate competences in the knowledge society; and a survey of higher education graduates in these countries. The researchers found that higher education graduates are expected to be competent in at least the following five interrelated areas:

- **Professional expertise:** In order to become experts in their professional fields, higher education graduates are required to achieve a high degree of mastery of the knowledge and skills relevant to their domains of work, an ability to use this mastery to diagnose and solve complex problems in their own area of work, while also commanding authority and acting decisively in uncertain situations.
- **Functional flexibility:** The dynamic nature of the world of work, related to rapid developments in technology, markets, organisations and relevant knowledge, makes it necessary for higher education graduates to adapt to changes in their work environments by learning new knowledge and skills, by possessing generic and multidisciplinary skills and by coping positively with change.
- **Innovation and knowledge management:** In a modern society higher education graduates are expected to do more than simply carrying out a set of prescribed tasks. These researchers point out that higher education graduates are required to possess a high degree of innovative capacity, creativity, curiosity as well as a willingness and ability to question the status quo and hence contribute to the development of new knowledge and ideas for the organisation to use. In addition, graduates can contribute to innovation by gaining access to new ideas developed elsewhere by

using communication skills, appropriate information and communication technology skills and networking skills. Related to these aspects, graduates are also required to demonstrate the ability to synthesise information from different sources, draw connections between apparently disparate subjects and transfer existing ideas to new applications, and finally, to demonstrate organisational abilities, negotiation skills and assertiveness for implementing ideas from concept to finished product or service.

- **Mobilisation of human resources:** Several aspects are related to the ability to effectively mobilise competencies and actively steer and direct one's own work as well as that of others. Graduates need an ability to work autonomously when working alone, while also cooperating with others when working in a team. In addition, graduates are required to mobilise the capacity of others involving an ability to communicate ideas effectively, to inspire others, to plan and monitor work processes and show leadership skills by being assertive and by taking decisive action when necessary. It is therefore important to act in such a manner that human resources can be used optimally, creating synergies in teams, setting up clear lines of communication and by adapting the work environment to better fit their competencies and those of co-workers.
- **International orientation:** A good command of foreign languages and an ability to demonstrate intercultural competencies will assist graduates in coping with the demands of globalisation and the blurring of national borders. (Allen & Van der Velden, 2005:3-4).

In an attempt to determine which competencies are really in demand in the labour market, **Table 2.2** presents a list of 16 competencies linked to four of the five interrelated areas, as described above.

Generally, the report found that graduates in most European countries did well in the labour market and that most graduates performed roles in occupations that required generalist or specialist education at a tertiary level. It is important to note that more than a quarter of the graduates surveyed indicated that their knowledge and skills were under-utilised in their current occupations, a response most common among those with degrees in the humanities or social sciences.

Table 2.2: Areas of competence used in REFLEX study

Interrelated areas of competence	Items linked to each area
Professional expertise	<ul style="list-style-type: none"> • Mastery of own field or discipline • Analytical thinking • Ability to assert authority
Functional flexibility	<ul style="list-style-type: none"> • Knowledge of other fields or disciplines • Ability to rapidly acquire new knowledge • Ability to negotiate effectively
Innovation and knowledge management	<ul style="list-style-type: none"> • Ability to use computers and the internet • Ability to come up with new ideas and solutions • Willingness to question your own and others' ideas • Alertness to new opportunities
Mobilisation of human resources	<ul style="list-style-type: none"> • Ability to perform well under pressure • Ability to use time efficiently • Ability to work productively with others • Ability to mobilise the capacities of others • Ability to make your meaning clear to others • Ability to coordinate activities

Source: Allen & Van der Velden (2007:14)

- A concise summary of the results and findings of the REFLEX project (Allen & Van der Velden, 2007:27, 49-52, 267-272) relevant to the role of higher education in preparing graduates for the labour market is provided here:
- Some 70 per cent indicated that their study programme was a good basis for personal development.
- Only 20 per cent indicated that their study programme was a good basis for the development of entrepreneurial skills.
- Approximately 50-60 per cent of graduates indicated that higher education provided them with a valid entry ticket to the labour market, while 15-20 per cent of graduates indicated that their study programme clearly failed in this respect.
- About 55-60 per cent of graduates indicated that higher education provided a basis for long-term employment.
- Graduates indicated that those who are able to mobilise their own competencies are more likely to be employed.
- Around 30 per cent or more of the HE graduates considered mastery of their own field of study, analytical thinking ability and ability to rapidly acquire new knowledge as the strong points of their higher education studies.

- Graduates indicated that the ability to write and speak in a foreign language, ability to assert authority and ability to negotiate effectively, or to introduce the present products, ideas or reports to a wider audience were considered to be weak points of their higher education study programmes.
- Finally, vocational oriented programmes were found to be good in developing professional expertise and strengthened graduates' chances of entering the labour market and the development of their careers.

In conclusion, with reference to the four areas of competence (See **Table 2.2**), Allen and Van der Velden (2007:268) state that an important conclusion of the REFLEX project is the dominant role of **professional expertise** as determinant of labour market success. These researchers indicate that despite strong pleas for a focus on generic skills, such as problem-solving or learning-to-learn, it is doubtful whether such generic skills can be developed without the context of a specific field, for in their opinion the specific field of knowledge serves as “the carrier through which generic skills may be developed” (Allen & Van der Velden, 2007:268). Professional expertise is important not only for the “old” or classical professions such as medicine and law, but also for new professions in business, engineering, science and technology. In addition, professional expertise is important not only for those graduates working inside their field of study, but also for those working outside their own domain, which implies that “a good education in a particular field not only provides graduates with the skills that are needed in jobs that match that field, but also provides a basis for the development of more general analytical skills that can be applied in other areas as well” (Allen & Van der Velden, 2007:268).

Although HE graduates are exposed to some forms of external flexibility such as job mobility, periods of unemployment and temporary employment contracts, the role of flexibility as a core competence seems to be less clear from the data of the REFLEX project. In terms of internal or **functional flexibility**, the data indicated that the ability to cope with changes in the work environment does play an important role in the professional life of graduates, although it does not appear to directly contribute to earnings in the labour market. It seemed that being very flexible could even hamper the optimal utilisation of a graduate's skills, as – by definition – only part of these skills would be put to use in any job (Allen & Van der Velden, 2007: 50, 268).

Graduates with a high level of **innovation and knowledge management** were mostly employed in jobs where they could fully utilise their knowledge and skills, and less often in lower level jobs. No relation between the level of competence in this area and earnings

could be found, nor did a high level of innovation and knowledge management improve employment chances of such graduates. Higher education graduates working in small companies were able to play an active role in introducing innovations, although most innovation as such takes place in large organisations (Allen & Van der Velden, 2007:50, 270).

Allen and Van der Velden (2007:269) emphasise the importance of having a high level of competence in **mobilisation of human resources**, since it is related to employment chances, the utilisation of skills acquired in higher education, as well as to earnings. When discussing the mobilisation of human resources, it is important to distinguish between mobilising the resources of others and one's own resources. These researchers point out that most higher education graduates have been rather successful in mobilising their own resources, but pay less attention to mobilising the human resources of others such as supervising and or assessing others, or bearing strategic and/or decision-making authority for their organisations.

The REFLEX survey found evidence that the demands in the areas of professional expertise, functional flexibility, innovation and knowledge management and the mobilisation of human resources were more or less universal, with the required level of competence relatively high across the board. However, Allen and Van der Velden (2007: 271) report that approximately 10 per cent of the graduates indicated that their own competence level was lower than what was required of them in the workplace, which implied that graduates were having difficulty performing their jobs. About 15 per cent of graduates indicated that their competence level exceeded job requirements, which again implied that work situations failed to utilise graduates' full potential.

Finally, the authors of the REFLEX report concluded that international graduate surveys of this kind provide important insights into the relationship between higher education and the world of work and recommended that studies of this kind should be done at five year intervals to keep pace with the demands of the knowledge economy. Allen and Van der Velden (2007:276-277) also recommended that higher education study programmes should be more demanding; should strengthen the development of professional expertise; should be student-centred and supported by a range of teaching and assessment strategies. Work experience closely related to the field of study clearly had a positive effect on the development of relevant skills and higher education institutions could assign credits to relevant experience to encourage participation. However, Allen and Van der Velden (2007:277) cautioned higher education institutions not to overestimate the positive effect of

internships and work placements, since the REFLEX study merely indicated that initiatives of this kind provided a smooth transition to a job, rather than strengthening the development of professional expertise.

2.5.3.2. Confederation of British Industry (CBI) report on preparing graduates for the world of work

The second report with the title: *Future fit: preparing graduates for the world of work*, was published by the Confederation of British Industry (CBI) and the Universities United Kingdom (UUK) in March 2009. The report provides data collected from an education and skills survey conducted in November 2008 which was based on responses received from 581 employers collectively employing more than 2.5 million people or approximately 8 per cent of the total UK workforce.

This report defines employability skills and explains why these skills are important in today's global economy. The report (CBI, 2009:10) states the following:

The purpose of higher education is not solely about turning out work-ready graduate for employers who can be plugged in from day one.

But in the summer of 2009, the UK's higher education institutions will produce 400 000 new graduates. They will be entering the labour market at perhaps the worst time in a generation – highly developed employability skills, at the very least, together with experience of the world of work will be getting a foot in the door when it comes to securing graduate-level jobs or on the ladder towards one.

The report (CBI, 2009:10) indicates that the international economic downturn has made the acquisition of employability skills more important and more difficult – more important because in period of high unemployment and reduced graduate recruitment, graduates will have to convince employers that they are able to meet expectations. The report also looks at what employers want of the graduates they employ, what universities are doing to embed these skills in their curricula and whether the needs of students are being met. The CBI (2009:8) defines employability skills as:

A set of attributes, skills and knowledge that all labour market participants should possess to ensure they have the capability of being effective in the workplace – to the benefit of themselves, their employers and the wider economy.

Definitions of employability skills used by UK universities also emphasise the importance of research skills, managing complex information and critical thinking. **Table 2.3** provides a list of the employability skills of the joint 2009 report by the CBI and UUK:

Table 2.3: CBI-UUK Employability skills (2009)

Employability skills	Details
Self-management	Readiness to accept responsibility; flexibility; resilience; self-starting; appropriate assertiveness; time management; readiness to improve own performance based on feedback/reflective learning.
Team working	Respecting others, co-operating, negotiating/persuading, contributing to discussions, and awareness of interdependence with others.
Business and customer awareness	Basic understanding of the key drivers of business success – including the importance of innovation and taking calculated risks – and the need to provide customer satisfaction and build customer loyalty.
Problem solving	Analysing facts and situations and applying creative thinking to develop appropriate solutions.
Communication and literacy	Application of literacy, ability to produce clear, structured written work and oral literacy – including listening and questioning.
Application of numeracy	Manipulation of numbers, general mathematical awareness and its application in practical contexts (e.g. measuring, weighing, estimating and applying formulae).
Application of information technology	Basic IT skills, including familiarity with word processing, spreadsheets, file management and use of internet search engines.
Positive attitude	A “can-do” approach, a readiness to take part and contribute, openness to new ideas and a drive to make these happen.
Entrepreneurship/enterprise	An ability to demonstrate an innovative approach, creativity, collaboration and risk taking.

Source: Confederation of British Industry (CBI) (2009:8)

A concise summary of the results and findings of the CBI report (2009:11-12), relevant to the role of higher education in preparing graduates for the labour market, is provided here:

- Over three-quarters of the firms who responded to the CBI survey stated that employability skills were a top priority, especially when recruiting graduates.
- Although employers indicated that they invest heavily in training graduate recruits when they join their organisations, there is an expectation that graduates should manage themselves well and be effective team players.
- Employers indicated that generally speaking they were satisfied with the employability skills of the graduates they had recruited in the last 12 months, but they were not overly impressed with the new graduates’ basic literacy and numeracy skills.
- There was an element of dissatisfaction with graduates’ awareness of business and customer issues, and also in relation to the level of self-management skills which graduates possess.

- Academic disciplinary knowledge was important for only four out of ten employers and some companies were concerned that students were enrolled in qualifications that did not match scarce skills areas of the economy, nor did the curricula of these qualifications provide graduates with the know-how to address the innovation and scientific challenges facing society today.

In conclusion, this report emphasises the importance of employability skills from the perspective of UK universities, as described by the senior pro-vice chancellor of Nottingham Trent University, Prof Peter Jones (CBI, 2009:13) in this statement:

The definition of employability we use is “a set of achievements, skills, understandings and personal attributes that make individuals more like to gain employment and be successful in their chosen occupations which benefits themselves, the workforce, the community and the economy”. The definition is broader than just finding a job. Employability is a curriculum issue and the acquisition of subject specific knowledge and employability skills are complementary and not oppositional. Preparing graduates for the “world of work” is an integral part of our strategy.

The very high percentage (96%) of HE institutions who participated in the study thought that it is very likely that graduates would gain employability skills as a result of their time at university (CBI, 2009:20). Universities also indicated that their teaching staff had deliberately tailored their teaching strategies to help students in developing employability skills, although many reported that they did not find this to be an easy task. The report suggests that UK universities use many different ways of developing employability skills. These fall broadly into three categories, namely: where the development of these skills is integrated into the way the curriculum is designed and delivered; through other types of on-campus experiences such as special programmes often offered by employers; and through additional activities off campus in addition to the core study programme. Views from recent graduates also reflect the benefits of acquiring employability skills, as the following graduates’ statements from the CBI report (2009:15,18) indicate:

It opens doors so you’ll be considered for a job. Now so many people go to university you have to differentiate yourself. What can you demonstrate to employers? It’s down to the individual. Everyone’s got competencies.

When I went to my interview they were hardly asking me about my degree. They were asking me about confidence, how I react and leadership skills. That’s what gets you the job.

Finally, the many case studies in this report clearly emphasise the importance of employability skills in the 21st century from a higher education and graduate perspective. It is also evident that despite many success stories, embedding these skills in higher education curricula remain challenging, but it appears to be a rewarding experience for employers, graduates and HE teachers alike.

2.5.4. National perspective: Higher education responding to needs of the knowledge economy

Since 1994, education policy in South Africa has been strongly influenced by the new global demand that higher education institutions should become more responsive to the needs and expectations of industry, of the state, and of society, to ensure economic and social prosperity (Kruss, 2004:673). The Education White Paper 3: A programme for the transformation of Higher Education (SA DoE, 1997a) and the *Higher Education Act* (SA DoE, 1997b) defined the role of higher education institutions as follows:

- **Human resource development:** The mobilisation of human talent and potential through lifelong learning to contribute to the social, economic, cultural and intellectual life of a rapidly changing society and promote tolerance of ideas and appreciation of diversity.
- **High level skills development:** Higher education is also required to provide the labour market in a knowledge-driven and knowledge-dependent society with high-level competencies and expertise necessary for the growth and prosperity of a modern economy.
- **Production, acquisition and application of new knowledge:** Economic growth and competitiveness of the country are dependent on technological improvement and innovation, driven by a vibrant research and development system which integrates the research and training capacity of higher education with the needs of industry and of social reconstruction.

The South African government launched the Joint Initiative for Priority Skills Acquisition (JIPSA) in 2006 to serve as a powerful catalyst in bringing the skills needs of South African economy and the role of higher education into renewed focus. In a recent strategic directive, The National Planning Commission's National Development Plan 2030 (2011:262) states:

Higher education is the major driver of the information/knowledge system, linking it with economic development. However, higher education is much more than a simple instrument of economic development. Education is important to good citizenship and enriching and diversifying life.

Universities are key to developing a nation. They play main functions in society. Firstly, they education and train people with high-level skills for the employment needs of public and the private sectors. Secondly, universities are the dominant producers of new knowledge, and they critique information and find new local and global applications for existing knowledge. Universities also set norms and standards, determine the curriculum, languages, and knowledge, ethics and philosophy underpinning a nation's knowledge-capital. South Africa needs knowledge that equips people for a society in constant social change. Thirdly, given the country's apartheid history, higher education provides opportunities for social mobility and simultaneously strengthens equity, social justice and democracy. In today's knowledge society, higher education underpinned by a strong science and technology innovation system is increasingly important in opening up people's opportunities.

Kruss (2004:682) states that in a study conducted in South Africa to explore the relationship between higher education and the world of work, the employers in the private sector indicated that they expected graduates who can “hit the ground running”. Higher education institutions were criticised because they did not offer “adequate “soft skills” – problem solving, communication, entrepreneurship, good citizenship, managerial skills, leadership skills ... that was formerly the preserve of the work-place, tacit knowledge, skills, and attitudes ... should become drawn into the essential functions of higher education” (Kruss, 2004:682).

2.5.4.1. SAQA-HESA baseline study on graduate attributes

In keeping with these debates, Higher Education South Africa (HESA) and the South African Qualifications Authority (SAQA) commissioned *A baseline study on South African graduates from the perspective of employers* (Griesel & Parker, 2009) with the main focus of determining: firstly, what employers expect of higher education graduates entering the workplace and; secondly, the degree to which graduates from the South African public higher education demonstrate these attributes. Two central assumptions underpinned this study by Griesel and Parker (2009:3):

- Firstly, that the knowledge, skills, competencies and values (combined to represent “graduate attributes”) developed by higher education may to varying degrees be out of sync with the needs and expectations of employers, and, at the same time, with the demands of a rapidly changing world of work.
- Secondly, and related to the former, that the notion of “skills” may need to be redefined in order to align the responsibilities of higher education with the possibilities of new and changing forms of labour and the application of knowledge.

Four framing categories of graduate attributes at an undergraduate level were used in this study namely:

- **Basic skills and understanding:** Do graduates display the necessary “know-how” to meet workplace expectations (i.e. can they “hit the ground running”)?
- **Knowledge and intellectual ability:** Do graduates display intellectual ability and sufficient conceptual depth to perform well?
- **Workplace skills and applied knowledge:** Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?
- **Interactive and personal skills:** Do graduates have a sense of self in relation to (changing) workplace contexts and practices?

The questionnaire used in this study, was designed to facilitate the triangulation of data through the use of open-ended questions, as well as by means of data generated in a juxtaposed section. A total of 99 employers from the employer databases of the South African Graduate Recruitment Association (SAGRA), the South African Society for Cooperative Education (SASCE) and the Department of Trade and Industry participated in this 2009 study. These employers represented sectors such as services, manufacturing, mining, construction, wholesale and retail, transport, information and communication technology, science and technology as well as tourism and travel. The employers were also representative in terms of gender, age population group and size of the organisation. A brief summary of the key findings from this study by Griesel and Parker (2009:10-18) are presented below:

- In the category **basic skills and understanding** it is expected of graduates to have a set of basic communication skills (written and oral presentation skills). Employers' ratings indicated that there was a significant gap between what graduates bring to the workplace and employers' expectations in terms of communicative competence in English, ICT skills and an understanding of the world of work. The biggest gap related to the "ability to find and access information", an attribute that was also rated as the most important alongside "written communication skills" and the "ability to use information".
- In the second category with a focus on **knowledge and intellectual ability**, the main assumption was that graduates need to consolidate their intellectual ability and disciplinary knowledge with skills in order to engage effectively with workplace demands and to benefit from opportunities in the workplace. Only one significant gap emerged in this category, namely: "understanding of economic and business realities". The smallest gap between employer expectations and higher education related to: "interest in ideas and desire to continue learning", which implied that higher education is preparing students adequately for the desire to be a lifelong learner.
- In this category, **workplace skills and applied knowledge**, the central assumption was that graduates need to make the shift between "theory" (disciplinary knowledge) and "practice" (workplace). The following attributes showed the biggest gap between what employers expect and what they actually get: i) Ability to choose appropriate information to address problems, ii) Ability to plan and execute tasks independently, iii) An appropriate approach to problem solving and iv) Ability to monitor and evaluate own work-related actions. The smallest gap related to graduates' "ability to deal with different cultural practices", which could perhaps indicate that SA graduates are able to find their way in different cultural settings.

- The fourth category, related to **personal and interactive skills** which will demand of graduates flexibility and adaptability in terms of changing workplace practices. The biggest gap related to “openness and flexibility”, and secondly “negotiation and mediation skills”, while the smallest gap related to “willingness to learn”.

Highlights from the outcomes of this baseline study (Griesel & Parker, 2009:1) indicated that, among others, employers value the conceptual foundation, knowledge and intellectual approach to tasks produced by higher education, but there is a real need to address gaps between employer expectations and higher education outcomes. Based on the findings of the gap analysis the following key issues need to be considered in terms of:

- *Communicative and ICT skills*, it seems that in terms of what employers regard as the most important components of **basic skills and understanding attributes**, higher education institutions are not aligned with their expectations (Griesel & Parker, 2009:11).
- **Knowledge and intellectual ability**, the only significant gap between the expectations of employers and their evaluation of recent graduates related to graduates’ *understanding of economic and business realities*. The data in this category suggested that higher education institutions’ outcomes and employer expectations were fairly well aligned (Griesel & Parker, 2009:13).
- In the category of **workplace skills and applied knowledge**, it is perhaps not surprising that a larger overall gap was found between what is expected and what attributes are achieved. It is evident that higher education finds it difficult to impart these *skilful practices and applied knowledge*, which are work-based rather than discipline-based (Griesel & Parker, 2009:14).
- In the category that relates to **attributes of person-in-context**, the assumption is that changing workplace practices will demand of graduates *flexibility and adaptability*. Higher education appeared to be fairly well aligned with the expectations of employers, although recent graduates did not seem to meet expectations in terms of a “sense of self in relation to others” (Griesel & Parker, 2009:17).

Summarily, the combination of gap analysis and principal component analysis used in this study indicates that there is a closer alignment between world of work and higher education than anticipated initially. Griesel and Parker (2009:17-18) also conclude that pedagogic, curricula and assessment practices that address employability should not be “over-specified or fragmented, nor described as simplistic outcome statements”. The authors also point out that emphasis should be placed on collaboration between employers and higher education to

conceptualise, design and implement work-integrated learning in ways that will articulate disciplinary knowledge with ways of learning in the workplace.

2.5.5. Conclusion

In this section, the focus was on the alleged mismatch between the needs of the world of work and the role of higher education in responding to these needs. Although it often appears as if these two worlds are at odds on the issue of knowledge, skills and competence regarding the needs of the knowledge-based society and global world, the researcher agrees with Knight and Yorke (2004:8) who suggest that “the sorts of attainments valued by employers actually align quite well with educational values and admired practices” of higher education, and that “despite the name, “employability” [or even generic competencies for that matter] can be understood as a concern with learning that has benefits for citizenship, continued learning and life in general”. With reference to the REFLEX project (Allen & Van der Velden, 2007), CBI-UKK (CBI, 2009) and SAQA-HESA (Griesel & Parker, 2009) reports, it appears as if the outcomes and processes that are often considered to be characteristic of good higher education are conducive to strong claims about employability. Possibly it is not so much a question of a mismatch, but rather a matter of different perspectives on how to embark on an aligned vision of developing a set of understandings, achievements and attributes that contribute to an individual’s personal, academic and career development in a holistic manner.

The next section of this chapter will explore the conceptual and contextual issues, including the four main arguments or meta-concepts identified in literature related to the notion of graduate attributes, as well as the conceptions and orientations of academic staff towards embedding graduate attributes in the curriculum.

Section 3: Graduate attributes

Conceptual and contextual issues

2.6. Conceptual issues related to graduate attributes in higher education

The debate leading up to the current interest in graduate attributes in higher education commenced in the early 1990s when a number of countries such as Australia, New Zealand, Canada, the United States of America and the United Kingdom embarked on discussions regarding key, core and generic competencies and skills in education and training. This section commences with an international perspective, going back to the late 1990s, on the conceptual and contextual issues related to the current interest in graduate attributes, while also exploring the relationship between the conceptual issues (terminology and definitions) and the contextual issues of employability, lifelong learning, responding to a changing world and global and social citizenship.

2.6.1. International perspective on terms and definitions

In the early 1990s many Western countries such as Australia, Canada, New Zealand, the United Kingdom, the United States of America and European countries were working on developing key workplace competencies or essential sets of skills (Finn, 1991; Secretary's Commission on Achieving Necessary Skills (SCANS), 1991; The Conference Board of Canada, 1992, 2000; Mayer, 1992; New Zealand Curriculum Framework, 1997; European Round Table of Industrialists, 1995, 1997, 1998; Dearing Report, 1997; Confederation of British Industry, 2009). These reports highlight the need for employability skills in a range of developed countries as well as the range of skills regarded by governments and enterprises as a priority to enhance the employability of graduates. Although different terms have been used to describe the sets of skills such as: "key competencies" (Finn, 1991; Mayer, 1992); "essential skills" (New Zealand Curriculum Framework, 1997); "employability skills" (The Conference Board of Canada, 1992, 2000); "key or core skills" (National Council for Vocational Qualifications, United Kingdom) and "necessary skills" or workplace know-how (USA, Department of Labor, SCANS, 1991), the primary focus of these sets of generic skills in each country is to enhance employability, which in turn will contribute to the economic wellbeing on the country.

Table 2.4 provides a comparison of the key skills in Australia, Britain, the United States and New Zealand during the 1990s. It is important to note that the Anglo Saxon/Australian model of employability skills was strongly influenced by the approach to competency-based training

adopted in both countries, which resulted in a more narrowly focused and instrumental set of key competencies and skills (Kearns, 2001:10).

In order to gain a thorough understanding of how the conceptual debate has evolved over time from a narrow competency-based focus to a capability focus in higher education, it is important to provide a short historical overview of the developments and the debate on generic competencies and employability skills in two countries, namely Australia and the United Kingdom over the past 25 years. These two countries have been selected for this purpose based on the close relationship between the South African education system and the Anglo Saxon system of education. Many of the industry bodies and government initiatives since the 1990s in these countries focused on the conceptualisation of generic competencies and skills relating to employability and transferability.

Table 2.4: Comparative table of generic employability skills of different countries during the late 1990s

Australia	United Kingdom	Canada	United States of America	New Zealand	South Africa
Mayer committee	National Council of Vocational Qualifications	The Conference Board of Canada	SCANS	New Zealand Curriculum Framework	South African Qualification Authority (SAQA)
Key competencies	Core skills	Employability skills profile	Workplace know-how	Essential skills	Critical cross-field outcomes
Collecting, analysing and organising information	Communication	Thinking skills	Information Foundation skills: basic skills	Information skills	Collect, analyse, organise and critically evaluate information.
Communicating ideas and information	Communication Personal skills: improving own learning and performance	Communication skills	Information Foundation skills: basic skills	Communication skills	Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation.
Planning and organising activities	Personal skills: improving own learning and performance	Responsibility skills Thinking skills	Resources Foundation skills: personal qualities	Self-management skills Work and study skills	Organise and manage oneself and one's activities responsibly and effectively.
Working with others and in teams	Personal skills: Working with others	Positive attitude and behaviour Work with others Adaptability	Interpersonal skills	Social skills Work and study skills	Work effectively with others as a member of a team, group, organisation, community.
Using mathematical ideas and techniques	Numeracy: application of number	Understand and solve problems using mathematics	Foundation skills: basic skills	Numeracy skills	Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation.
Solving problems	Problem-solving	Problem-solving and decision-making skills Learning skills	Foundation skills: thinking skills	Problem-solving skills and decision-making skills	Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made.
Using technology	Information technology	Use technology Communication skills	Technology Systems	Information skills Communication skills	Use science and technology effectively and critically, showing responsibility towards the environment and health of others.
Cultural understandings²	Modern foreign language	Manage information Use numbers Work safely Participate in projects and tasks			

Adapted from: Kearns (2001:15), ACCI & BCA (2002:28), SAQA (2000:18)

² This aspect was not originally included in the key competencies of the Mayer committee, but added later.

2.6.1.1. Australia

Over a period of more than twenty years **Australia** has known numerous reports and policy developments aimed at strengthening the linkages between education and the world of work. One of the key policy mechanisms to strengthening the linkages between education and the labour markets has been the attempt to embed key competencies in curricula. The first initiative was the **Karmel report** in 1985, which stressed that the secondary school sector should support graduates' attainment of standards suitable for employment. The second initiative of this kind was taken when the **Finn Committee** in its report on *Young People's Participation in Post-Compulsory Education and Training* published in July 1991 formalised the use of the term "key competencies" (Cushnahan, 2009:8). This committee's use of the term "**key competencies**" was significant at the time, since it was the first attempt to collectively describe the list of individual skills as competencies and no longer merely as traits or skills. Cushnahan (2009:8) indicates that by describing these traits or skills as competencies, "it was implied that they can be taught and assessed and a minimum level of achievement identified, at which point a candidate would be considered competent". Although the Finn Committee failed to provide an explicit definition of the term key competencies, it is presumed to include the ability to perform specific tasks, to have relevant knowledge and understanding as well as the ability to transfer skills and knowledge to new situations (Speedy, 1992 in Werner, 1994:4). In the early 1990s these key competencies were viewed in Australia as "the most direct and beneficial employment solution for the future". It was agreed that the attainment of these key competencies would not only improve the chances of young people to participate in employment, but that it would also be beneficial to society at large (Cushnahan, 2009:8). The Finn Committee (Finn, 1991:58) recommended that six key areas of competence be emphasised: language and communication; mathematics; scientific and technological understanding; cultural understanding; and problem solving on a personal as well as an interpersonal level. The same committee also recommended that an expert group be established to undertake more detailed work on the six key areas of competence and to make recommendations regarding its implementation.

In 1992 the Australian Government established such expert group to further develop the concept of employment-related key competencies, as recommended by the Finn Committee report (1991). The committee under the chairmanship of Eric Mayer set out to facilitate the development of employment-related key competencies in the six key areas of competence identified by the Finn Committee (1991). They introduced a "standards framework" as a common reference point for curriculum and teaching, as well as a consistent approach to assessing and reporting achievement (Mayer, 1992:vii). The **Mayer Committee** reported

that the committee had adopted an inclusive approach in identifying competencies that would prepare all young people in Australia for the world of work. They added that this task was executed with the primary aim to develop clearer links between employment and education. Acknowledging that workplaces in Australia are changing in response to the need to improve productivity and compete with world best practices in international markets, the Mayer committee report (Mayer, 1992:viii) states that these changing circumstances call for a strong foundation of knowledge, skills and understanding that are developed through general education. However, these changes also require vocational competencies, as well as “a further ingredient”, namely key competencies that “fuse general education with vocational training”. This report outlines the three stages of an extensive research and consultation process which culminated into a set of key competencies which the Mayer committee recommended to the Australian Education Council and the Ministers of Vocational Education, Employment and Training as essential for all young Australians to develop (See **Table 2.5**). It is also important to note that the Mayer Committee report (Mayer, 1992:7) recommended the following definition of key competencies:

Key Competencies are competencies essential for effective participation in the emerging patterns of work and work organisation. They focus on the capacity to apply knowledge and skills in an integrated way in work situations. Key competencies are generic in that they apply to work generally rather than being specific to work in particular occupations and industries. This characteristic means that the Key Competencies are not only essential for effective participation in work but are also essential for effective participation in further education and in adult life more generally.

The seven key competencies recommended by the Mayer Committee (1992) appear in **Table 2.5**. According to the Mayer report key competencies must:

- Be essential for preparation for employment.
- Be generic to emerging patterns of work and work organisations.
- Equip individuals to participate effectively in a wide range of social settings and adult life.
- Involve integration and application of knowledge and skills.
- Be able to be learned.
- Be amenable to credible assessment (Mayer, 1992:12).

Table 2.5: Key Competencies from the Mayer Committee Report (1992)³

Key competencies	Descriptors
Collecting, analysing and organising information	The capacity to locate information, sift and sort the information in order to select what is required and present it in a useful way, and evaluate both the information itself and the sources and methods used to obtain it.
Communicating ideas and information	The capacity to communicate effectively with others using a whole range of spoken, written, graphic and other non-verbal means of expression.
Planning and organising activities	The capacity to plan and organise one's own work activities, including making good use of time and resources, sorting out priorities and monitoring performance.
Working with others and in teams	The capacity to interact effectively with other people both on a one-to-one basis and in groups, including understanding and responding to the needs of others and working effectively as a member of a team to achieve a shared goal.
Using mathematical ideas and techniques	The capacity to use mathematical ideas, such as number and space, and techniques, such as estimation and approximation, for practical purposes.
Solving problems	The capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and the desired solution are clearly evident, and in situations requiring critical thinking and a creative approach to achieve an outcome.
Using technology	The capacity to apply technology, combining the physical and sensory skills needed to operate equipment with the understanding of scientific and technological principles needed to explore and adapt systems.

Source: Curtis and McKenzie (2001:15)

The Mayer Committee also introduced the notion of standard-referenced performance levels into key competencies by stating that not only should students gain competence in the seven key areas, but they should also have to demonstrate competence at a minimum set level for each. The three performance levels of the key competencies (Mayer, 1992:18), in ascending order, are:

- **Performance Level 1** describes the competence needed to undertake activities efficiently and with sufficient self-management to meet the explicit requirements of the activity and to make judgements about quality of outcome against established criteria.
- **Performance Level 2** describes the competence needed to manage activities requiring the selection, application and integration of a number of elements, and to select from established criteria to judge quality of process and outcome.
- **Performance Level 3** describes the competence needed to evaluate and reshape processes, to establish and use principles in order to determine appropriate ways of

³ Note the resemblance with the SAQA critical cross-field outcomes listed in [Paragraph 2.6.2](#).

approaching activities, and to establish criteria for judging quality of process and outcome.

The Mayer Committee report (1992) recognised the difficulties in assessing generic skills, and, in an attempt to achieve national consistency in assessment, established a set of principles for assessment based on validity, fairness and reliability. The report also proposed two types of reporting on student achievement, namely an individual student record to track progress from high school to employment and a national statistical reporting system to track performance of the education system in delivering the key competencies (Cushnahan, 2009:10). Curtis and McKenzie (2001:viii) report that the implementation of the key competencies of the Mayer Committee report (1992) had been “patchy” and that the VET sector had used the key competencies more extensively than the school sector in Australia. Despite difficulties with implementation, these authors argue that the concept of key employability skills have not been rejected and that there is still widespread support for education and training to provide young people with generic employability skills (Curtis & McKenzie, 2001:viii). The framework of key competencies presented by the Mayer Committee (1992) forms part of an ongoing debate about generic employability skills; in fact, the committee (Mayer, 1992:9) itself recommended that:

The Key Competencies be reviewed periodically ... to ensure that the set appropriately reflects the generic competencies essential for effective participation in the emerging forms of work and work organisation.

The Mayer Committee report therefore contributed significantly to the ongoing development of the concept of “employability skills” in Australia, which is evident from a number of Australian government reports that followed, such as *Investing for Growth* (1997), *Knowledge and Innovation* (1999) and *Backing Australia’s Ability* (2001). The same committee also commissioned papers such as the *Employability Skills for Australian Industry: Literature review and framework development*, compiled by the Australian Council for Educational Research (Curtis & McKenzie, 2001), and *Employability Skills for the Future*, compiled for the Department of Education, Science & Training by the Australian Chamber of Commerce and Industry (ACCI) and the Business Council of Australia (BCA) (2002). The three recent reports, *Investing for Growth* (Australian Government Department of Industry, Science & Tourism, 1997), *Knowledge and Innovation* (Commonwealth of Australia, 1999) and *Backing Australia’s Ability* (Commonwealth of Australia, 2001) highlight the Australia’s role as an international player in the knowledge economy. At the same time they stress the need to continue building the country’s capacity to effectively respond to globalisation and the knowledge economy by outlining a series of government initiatives targeted at research and development, commercialisation, venture capital and technology diffusion. Australian

employers, often through employer associations such as the Australian Chamber of Commerce and Industry (ACCI), the Business Council of Australia (BCA) and the Australian Industry Group (AiG), advise government as well as education and training institutions on the skills needed to support enterprise performance. In 2001 the Australian Chamber of Commerce and Industry (ACCI) and the Business Council of Australia (BCA) obtained the views of small, medium and large enterprises in Australia, using quantitative and qualitative research methods to assist with the development of a comprehensive framework of employability skills. They adopted the following definition of employability skills in their 2002 *Employability Skills For the Future* report:

Employability skills are defined as skills required not only to gain employment but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions (ACCI & BCA, 2002:14).

These Australian government agencies and enterprises argue that the term “employability skills” is more appropriate to use than key competencies, “since it conveys a greater sense of an individual’s long-term capacity to build a career and to prosper in a dynamic labour market” and employability implies “qualities of resourcefulness, adaptability and flexibility” (Curtis & McKenzie, 2002:4). Employability, according to Curtis and McKenzie (2002:4) also relates strongly to lifelong learning, since it signals the qualities needed for success not only in paid employment, but also in other domains of life.

This report (ACCI & BCA, 2002:8-9) also devised an Employability Skills Framework which enhances the key competencies of the Mayer Committee report (1992), consisting of eight employability skills. A summary of the Employability Skills Framework is provided in **Table 2.6**.

Table 2.6: Eight employability skills of Employability Skills Framework

Employability skills	Description
Communication skills	Skills that contribute to productive and harmonious relations between employees and customers.
Team work skills	Skills that contribute to productive working relationships and outcomes.
Problem-solving skills	Skills that contribute to productive outcomes.
Initiative and enterprise skills	Skills that contribute to innovative outcomes.
Planning and organising skills	Skills that contribute to long-term and short-term strategic planning.
Self-management skills	Skills that contribute to employee satisfaction and growth.
Learning skills	Skills that contribute to ongoing improvement and expansion in employee and company operations and outcomes.
Technology	Skills that contribute to effective execution of tasks.

Adapted from: ACCI & BCA (2002:7)

This Australian Employability Skills Framework (ACCI & BCA, 2002:36) acknowledges the key competencies of the Mayer committee report (1992), yet in addition to job-specific and relevant technical skills, employers require “personal attributes” (or non skill-based behaviours and attitudes) and “employability skills” (a term used to describe the learned capacity of the individual), while “elements” refer to the context-dependent facets of the skills that employers identified as important. The authors of the *Employability Skills For the Future* report (ACCI & BCA, 2002:37) suggest that the Employability Skills Framework will be useful to those developing curricula, courses and training programmes, learning aims and objectives, and learning tools for schools, vocational education and training, as well as for higher education. Yet Australian educational researchers (Bowden & Marton, 1998; Hager, 2006; Wheelahan, 2010; Wheelahan & Moodie, 2011) indicate that initiatives to enhance employability have been less successful.

Harvey (2001) in Barrie, Hughes, Smith and Thomson (2009b:3) indicates that employability skills might range from what can be called “work-ready” skills to “career success” skills. Although it is often suggested that employability skills are a subset of university graduate attributes, it is perhaps more useful to think of employability skills as being about **how** graduate attributes (GA) might be manifested in a particular context, such as the workplace, a research context or a social justice context (Barrie *et al.*, 2009b:3). These authors suggest that “a key point in relation to the employability context is that GA are not about the skills required to get the job. Rather, they are the skills needed to thrive in a job” (Barrie *et al.*,

2009b:3). However, it is interesting to note that those skills and abilities required to thrive in a career are also those that employers are looking for in employees. They are often listed in conversations about employability skills and in graduate attribute statements of HE institutions.

In recent years the majority of Australian universities have formulated statements on graduate attributes. According to the Australian Learning and Teaching Council (Rigby, 2009:3) these graduate attribute statements are underpinned by:

- Notions of employability and transferability.
- The notion of lifelong learning.
- The expectations of industry bodies.
- The need to produce active, engaged citizenry.
- The need to prepare students for an uncertain future.
- Student-centred pedagogy.
- The three broad competencies of the DeSeCo project: acting autonomously and reflectively, using tools interactively; and joining and functioning in socially heterogeneous groups (See **Paragraph 2.7.2.**).

Rigby (2009:3) indicates that based on a broad conceptualisation of generic skills in Australian universities, it encompasses anything from skill components to attitudes, values, dispositions, capabilities, and competencies. Bosanquet, Winchester-Seeto and Rowe (2010) conducted a thematic and word frequency analysis of institutional definitions of and justifications for graduate attributes of 13 Australian universities between 1996-2009. A search of the websites of approximately one third of the 38 Australian universities yielded 13 current statements of graduate attributes, and a further three earlier versions; in other words, a total of 16 sets of statements of graduate attributes for undergraduates. **Table 2.7** provides a thematic analysis of graduate attribute statements from 13 Australian universities – these should only be used to detect trends.

Table 2.7: Thematic analysis of graduate attribute statements from 13 Australian universities

Graduate attribute categories	1996-2000 (3 sets) % frequency	2001-2005 (7 sets) % frequency	2006-2009 (7 sets) % frequency
Discipline specific	67	67	86
Scholarship	0	17	0
International (or global) perspective for study	100	83	71
Interdisciplinarity	33	33	57
Professional practices	100	50	14
Application of discipline in workplace	0	33	57
(Effective) Communication	100	100	100
Information literacy/use of IT	100	100	86
Independence	67	83	43
Creativity, innovation	100	83	100
Research	0	50	71
Critical judgement	100	67	86
Problem-solving	67	67	71
Interpersonal skills	67	67	57
Teamwork	100	67	86
Planning/management skills	0	17	29
Ethics	67	100	71
Social and civic responsibility	67	100	71
Social justice	67	50	14
Global citizenship	0	17	43
Sustainability	0	17	57
Adapting to change	0	0	43
Promote change	0	17	43
Lifelong learning	33	83	71
Leadership	0	0	29
Cultural competence	0	17	57
Knowledge of other cultures	33	50	14
Cultural diversity	0	50	57
Indigenous	33	0	57
Knowledge of other historical times	33	33	14
Other	0	17	57

Source: Bosanquet *et al.* (2010:108-109)

Bosanquet *et al.* (2010:109) report the following findings:

- The predominance of skills and knowledge throughout the three time slices is the most obvious feature. Though the language varies slightly, several skills are present throughout the 15 years covered by this study. These include: communication, information literacy and ICT skills, creativity and innovation, critical judgment (e.g. critical thinking, analysis, decision-making), problem-solving, teamwork and interpersonal skills.
- Attributes that cover “discipline specific knowledge” (or scholarship), ethics, and “social and civic responsibility” occur in most attribute statements across the three time slices, as does “international perspectives” (or “global perspectives” and other similar perspectives).
- Changes in terminology have been reported in the following cases:
 - Concepts of “professional practice” have shown a major and progressive decrease over time, whilst “application of discipline to the workplace” has increased.
 - The graduate attribute relating to “social justice” exhibits a progressive decrease in frequency over the three time slices, whilst “global citizen” (or citizenship) has shown a progressive increase.
 - Similarly “knowledge of other cultures” shows a sudden decrease in the last time slice, but “cultural competence” shows a progressive increase from 2001–2005 to 2006–2009.
- Several attribute categories did not appear at all in the statements examined from 1996–2000; these include sustainability, research, cultural diversity, cultural competence and planning and management skills. Each of these, however, shows a substantial upward trend from 2001–2005 into 2006–2009.
- Three attributes first emerge in the latest time slice, or show a significant increase. These are: “adapting to change”, “promoting change” and “community leadership”.

Graduate attributes, as they are conceptualised in Australia, had their synthesis in the West Review of the Australian Department of Education, Science, Training and Youth Affairs (DETYA, 1998:47) in Precision Consultancy (2007), which provided a framework of generic attributes that every graduate should ideally possess:

- The capacity for critical, conceptual and reflective thinking in all aspects of intellectual and practical activity.
- Technical competence and an understanding of the broad conceptual and theoretical elements of his or her fields of specialisation.

- Intellectual openness and curiosity, and an appreciation of the interconnectedness, and areas of uncertainty, in current human knowledge.
- Effective communication skills in all domains (reading, writing, speaking and listening).
- Research, discovery, and information retrieval skills and a general capacity to use information.
- Multifaceted problem-solving skills and the capacity for team work.
- High ethical standards in personal and professional life, underpinned by a capacity for self-directed activity.

According to the *Graduate Employability Skills* report of Precision Consultancy (2007), all Australian universities have been required to develop policy statements which specify their generic graduate attributes as part of funding and reporting arrangements with the Department of Education, Science and Training since 1998. The graduate attributes specified in these policy statements of Australian universities are not discipline-specific, but intended to reflect broader aspirational, social, ethical or humanitarian characteristics that a society desires of its university graduates. Although there is a great variance amongst the graduate attributes described by individual universities, most of the eight employability skills are implicitly or explicitly addressed by each university's graduate attributes.

According to Oliver (2011:2) the most common generic attributes defined by universities, apart from knowledge outcomes, are clustered into seven broad areas:

- Written and oral communication.
- Critical and analytical (and sometimes creative and reflective) thinking.
- Problem-solving (including generating ideas and innovative solutions).
- Information literacy, often associated with technology.
- Learning and working independently.
- Learning and working collaboratively.
- Ethical and inclusive engagement with communities, cultures and nations.

Bosanquet *et al.* (2010:113) conclude that consistent with literature on graduate attributes, the meta-concepts of employability, lifelong learning, preparing students for an uncertain future and agents of social good were evident in varying degrees from the thematic analysis across the three time periods in Australia. These four meta-concepts will be discussed in more detail later in this section.

2.6.1.2. United Kingdom

In the **United Kingdom**, several reports such as the report of the Committee on Higher Education, chaired by Lord Robbins in 1963 and the report of the National Committee of Inquiry into Higher Education, chaired by Lord Dearing, commonly known as the Dearing Report (NCIHE, 1997), have explored the connection between government and higher education, imposing the employability of graduates on national higher education systems. Bennett, Dunne and Carré (2000:5) report that the Dearing Report of the United Kingdom (1997:4) emphasises the connection between higher education and a country's economy:

Powerful forces – technological and political – are driving the economies of the world towards greater integration. Competition is increasing from developing economies that have a strong commitment to education and training. The new economic order will place an increasing premium on knowledge which, in turn, makes national economies more dependent on higher education's development of people with high-level skills, knowledge and understanding, and on its contribution to research.

In Recommendation 21 (Chapter 3, Section 4), the Dearing report (NCIHE, 1997) states:

We recommend that institutions of higher education begin immediately to develop, for each programme they offer, a “programme specification” which identifies potential stopping-off points and gives the intended outcomes of the programme in terms of: the knowledge and understanding that a student will be expected to have upon completion; key skills: communication, numeracy, the use of information technology and learning how to learn; cognitive skills, such as an understanding of methodologies or ability in critical analysis; subject specific skills, such as laboratory skills.

The promotion of key or transferable skills was met with criticism by many educational theorists at the time, since it was seen as a means of “disenfranchising discipline-based academics of their expertise” (Bennett *et al.*, 2000:6) and the curriculum became an instrument of the state to fulfil the economic needs of the country. In Barnett's critique (1994) of this shift in ideology, his central argument is that “an ideology of academic competence is being displaced with another ideology, that of operational competence” (Bennett *et al.*, 2000:6). Despite these concerns, the notion of *key skills* were accepted in 1994 by Committee of Vice-Chancellors and Principals who motivated it as follows: “the world we live in is highly knowledge intensive, and graduates will increasingly require core transferable skills” (Bennett *et al.*, 2000:7). The National Committee of Inquiry into Higher Education (NCIHE, 1997) encouraged more systematic attention to skills such as communication, numeracy, IT and learning how to learn.

Much of the early work on key skills in the United Kingdom was undertaken by the National Council for Vocational Qualifications (NCVQ) and later by the Qualifications and Curriculum Authority (QCA). A nationally-agreed set of skills, commonly referred to as key skills, were developed in six areas: communication, application of number, information technology, working with others, improving own learning and performance, and problem solving. Each of

the six QCA key skills was specified in detail at four broad levels. Progression from levels one to four was characterised by increased technical demand, increased complexity of the context, increased autonomy of the individuals and an increased emphasis on process skills such as planning, reviewing and evaluating. At level five there was a single QCA key skills unit in personal skills development, recognising the dominant role of process skills common to all key skills at this level. The notion of key skills came under severe scrutiny in the United Kingdom from many educational researchers such as Bridges (2000), hence there has been little interest from higher education institutions in using the QCA key skill unit's specifications and assessment schemes.

Barnett *et al.* (2001:443) acknowledge that the higher education climate in the United Kingdom was under severe pressure in the early 2000s to produce graduates ready for the labour market and “employability” was rapidly becoming a “performance indicator” with a strong influence on curriculum, but graduate attributes according to Bennett *et al.* (1999:90) “have had little impact so far in part because of teachers' scepticism of the message, the messenger and its vocabulary and in part because the skills demanded lack clarity, consistency and a recognisable theoretical base”.

Under the auspices of The Higher Education Academy a group of UK educationalists established the Enhancing Student Employability Co-ordination Team (ESECT) and produced a set of publications: *Learning and Employability Series* to offer guidance and information to staff in higher education institutions to enhance student employability. These guides explored the complexity of employability and indicated that it is a more complex construct than those of “core” or “key” skills. More details about the USEM account of employability developed by Yorke and Knight (2006) is provided in **Paragraph 2.7.1.** in this chapter.

In 2012 a revised and updated version of the *Pedagogy for employability* publication (2006) was launched under the auspices of the Higher Education Academy. The authors of this publication argue that the economic, political and environmental pressures upon HE institutions have placed the issue of graduate employability centre stage (Pegg, Waldock, Hendy-Isaac & Lawton, 2012:4). Referring to the notion of employability defined as: “a set of achievements – skills, understandings and personal attributes – that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefit themselves, the workforce, the community and the economy” (Pegg *et al.*, 2012:4) in the earlier *Learning and Employability Series* of 2006, they emphasise that employability should even be extended to include an approach to personal development and career planning. To

indicate the tremendous interest in the pedagogy of employability in the United Kingdom, the authors (Pegg *et al.*, 2012:8) state that over the period of 2005 to 2010, 74 Centres for Excellence in Teaching and Learning (CETL) were established in 55 HE institutions. Teaching and learning in relation to employability was a specific aim for 22 CETLs and an associated issue for many others. It is therefore evident that the development of employability skills is a core component of HE teaching and learning in the United Kingdom.

2.6.2. National perspective on terms and definitions

2.6.2.1. South African Qualifications Authority

The role of higher education in South Africa as defined in the Education White Paper 3: A programme for the transformation of Higher Education (SA DoE, 1997a) and the *Higher Education Act* (SA DoE, 1997b) is to contribute to and support the process of societal transformation in South Africa; to equip individuals to make the best use of their talents and of the opportunities of self-fulfilment. A further objective is to provide the labour market in a knowledge-driven and knowledge-dependent society with the ever-changing high-level competencies and expertise necessary for the growth and prosperity of a modern economy. To this end, higher education curricula should produce knowledge with an emphasis on the development of generic skills and lifelong learning. With the introduction of National Qualifications Framework and outcomes-based education in South Africa in the late 1990s, qualifications registered by the South African Qualifications Authority (2000:14) are required to:

1. Represent a planned combination of learning outcomes which has a defined purpose or purposes, and which is intended to provide qualifying learners with applied competence and a basis for further learning;
2. Add value to qualifying learner in terms of enrichment of the person through provision of status, recognition, credentials and licensing, marketability and employability; and opening-up of access routes to additional education and training;
3. Provide benefits to society and the economy through enhancing citizenship, increasing social and economic productivity, providing specifically skilled/professional people and transforming and redressing legacies of inequity;
4. Comply with objectives of the NQF contained in section 2 of the (SAQA) Act;
5. Have both specific and critical cross-field outcomes that promote lifelong learning;
6. Where applicable, be internationally comparable;
7. Incorporate integrated assessment appropriately to ensure that the purpose of the qualification is achieved, and such assessment shall use a range of formative and

summative assessment such as portfolios, simulations, workplace assessments and also written and oral examinations;

8. Indicate in the rules governing the award of the qualification that the qualification may be achieved in whole or in part through the recognition of prior learning, which concept includes but is not limited to learning outcomes achieved through formal, informal and non-formal learning and work experience.

The introduction of critical cross-field outcomes described by SAQA (2000:16) as “the qualities which the NQF identifies for development in students within the education and training system, regardless of the specific area or content of learning i.e. those outcomes that are deemed critical for the development of the capacity for life-long learning” became important components of higher education curricula. Although SAQA (2000:19) indicated that “there is no prescription in any of the SAQA regulations or requirements of how these outcomes are to be incorporated and developed”, curriculum developers had to ensure that the following critical cross-field outcomes are in fact present in all education and training programmes:

1. Identify and solve problems in which responses demonstrate that responsible decisions using critical and creative thinking have been made.
2. Work effectively with others as a member of a team, group, organisation, community.
3. Organise and manage oneself and one's activities responsibly and effectively.
4. Collect, analyse, organise and critically evaluate information.
5. Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation.
6. Use science and technology effectively and critically, showing responsibility towards the environment and health of others.
7. Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation (SAQA,2000:18-19).

SAQA (2000:19) also identified five developmental outcomes which were defined as follows: In order to contribute to the full personal development of each learner and the social and economic development of the society at large, it must be the intention underlying any programme of learning to make an individual aware of the importance of:

1. Reflecting on and exploring a variety of strategies to learn more effectively;
2. Participating as responsible citizens in the life of local, national and global communities;
3. Being culturally and aesthetically sensitive across a range of social contexts;
4. Exploring education and career opportunities;
5. Developing entrepreneurial opportunities.

2.6.2.2. Council on Higher Education

The Council on Higher Education (CHE) published the 2nd draft *Framework for Qualification Standards in Higher Education* in January 2013, based on comments received from a range of stakeholders on an earlier draft published in November 2011. The CHE (2013:6) indicates that standards development is an important aspect of the implementation of the Higher Education Qualifications Sub-Framework (HEQSF) in South Africa and that one of its aims is to “enhance public perceptions of consistency between similar qualifications offered by different institutions and in different fields of study”, as well as to “state an agreed purpose underlying a qualification type and the student achievements that are evidence of the purpose being attained. The standard states what a programme leading to the qualification type intends to achieve and how we can establish that it has been achieved”. These qualification standards will be based on a taxonomy of learning domains, defined as “knowledge”, “skills” and “applied competence” (CHE, 2013:18), capable of reflecting the distinctive characteristics of the vocational, professional and general pathways respectively as stipulated in the HEQSF (2013). “Knowledge” is defined as “the theoretical grounding for comprehension and understanding, “skills” as “what the graduate can do” and “applied competence” as “capacity to apply knowledge and skills in authentic contexts, including appreciation of relevant social, cultural and ethical issues” (CHE, 2013:34).

“One way of seeking to identify the distinctiveness of a qualification, and of programmes leading to its award, is to compare the extent to which the blend of learning domains (knowledge, skill, applied competence) reflects the purpose of the qualification, and the extent to which the blend is reflected in the attributes of a graduate or recipient” (CHE, 2013:19). The Council on Higher Education (2013:19) states that although outcomes and graduate attributes should not be construed as mutually exclusive, graduate attributes are geared to outcomes such as knowledge, skills and competences, “but also encompass values, attitudes, critical thinking, ethical and professional behaviour, and the capacity of a graduate to take what has been learnt beyond the site of learning”. The CHE (2013:19) proposes to incorporate the concept “graduate attributes” in preference to the more restricted (and limiting) term “outcomes”. It acknowledges that articulating “graduate attributes *in a meaningful way* [italics in original text] will not be easy, especially in cases where such attributes are reflected more in attitudes than in the concrete demonstration of specific knowledge or skills”. However, the emphasis should be on “what a graduate is able to do or show” (CHE, 2013:20).

2.6.3. Defining graduate attributes

Generally people talk about graduate attributes as if they are all of a kind, yet graduate attributes include “a range of diverse and fundamentally different kinds of entities such as skill components, attitudes, values and dispositions” (Hager, 2006:18). Graduate attributes designated as generic skills, transferable skills, employability skills and even “soft” skills are, despite this ongoing debate about terminology, regarded as an essential outcome of university study, employment and life. **Table 2.8** contains a list of various qualifiers and different descriptors which are often used in literature on graduate attributes (Curtis & McKenzie (2001:5).

Table 2.8: Terms commonly associated in literature with graduate attributes

Qualifier	Explanation
Core Key Necessary Essential	The qualifiers core, key, necessary and essential convey the sense that these entities are requirements applicable to all people, irrespective of the level and nature of the work or other activities undertaken. These also appear to be the minimal standards that must be achieved.
Generic Transferable	The terms generic and transferable are associated with entities that are applicable across all areas of human activity and they can be learned in one context and applied in others.
Graduate	The term graduate is associated with universities and draws attention to those attributes that are associated with undergraduate studies.
Employment-related or workplace ⁴	The term employment-related suggests that the entities associated with this term are only of interest to individuals in relation to their work and to employers. Employment-related focuses mostly on an orientation to the current state of the labour market. These entities are often used to recruit workers and are required by workers to function effectively within organisational structures of knowledge-based enterprises.
Employability	The term employability carries a sense of an individual’s long-term capacity to build a career and to prosper in a dynamic labour market. Employability signals qualities needed for success such as resourcefulness, adaptability and flexibility that applies also to other domains of life.
Lifelong learning	Lifelong learning relates to a person’s willingness and ability to learn new skills throughout their lives and relates to adaptability and flexibility.
Skills	Although the word skill has been used in a very general sense to subsume all the descriptors listed here, it is commonly understood to refer to an ability to perform a specific task. In the context of the European Qualifications Framework (2008), the term “skill” means the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).
Competencies	The term “competency” refers to an observable behaviour, a skill that is performed to a specified level and therefore provides a basis for the assessment of performance. The term “competence” suggests that people have an underlying understanding that enables them to produce and evaluate workable responses to novel situations. The term “competence” is distinguished from a “competency”. The term competency appears to be reductionist in a climate of rapid change and a degree of uncertainty about future requirements (Curtis & McKenzie, 2001).

⁴ OECD (2001)

	In the context of the European Qualifications Framework (2008), the term “competence” means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. Competence is described, in the context of the European Qualifications Framework, as responsibility and autonomy.
Attributes Characteristics Qualities	Attributes, qualities and characteristics refer to capabilities of individuals. The term “characteristics” are also used to describe the requirements of a particular job.

Adapted from: Curtis & McKenzie (2001:5-8), OECD (2001),
European Qualifications Framework (2008)

A diverse collection of thinking skills (logical and analytical reasoning, problem solving and intellectual curiosity); effective communication skills; teamwork skills; capacities to identify, access and manage knowledge and information; personal attributes such as imagination, creativity and intellectual rigour; and values such as ethical practice, persistence, integrity and tolerance are often associated with the terminology listed in **Table 2.7**. This range of skill components, attitudes, values and dispositions cannot be associated only with skills and competencies in the narrow sense of training to improve productivity and economic prosperity. It is therefore not appropriate to refer to these as generic skills or competencies or even employability skills. The attitudinal and dispositional qualities associated with cultural, ethical and social circumstances cannot be achieved through training; these can only be addressed through knowledge and reflection. A term such as “attribute”, is a more appropriate descriptor of such a collection of skill sets, attitudes, values and dispositions associated with what students should achieve through higher education studies. Hager (2006:18) indicates that this unfortunate lumping together of significantly distinct kinds of entities is in actual fact the result of an uncritical use of language and the use of common sense metaphors. He suggests that this “lazy use of language” is linked to five common misunderstandings about graduate attributes (Hager, 2006:18-31):

- **First misconception:** Graduate attributes are often mistakenly viewed as “discrete, self-contained items or things” (Hager, 2006:20) that can be acquired and transferred singly from one context to another as deemed necessary. The problem with this misconception, as pointed out by Hager (2006:20-23), is threefold:
 - **Firstly**, within the context of learning for a complex world, the notion of “transfer” is problematic. Learning should not be seen as the accumulation of a set of discrete acquisitions that can be transferred to various contexts, but rather as an ongoing process of developing capabilities that enables the individual to respond effectively to a variety of contexts.
 - **Secondly**, graduate attributes should not be regarded as discrete, self-contained items to be acquired, but as a diverse range of attitudes and

dispositions influenced by cultural, ethical and social circumstances that are constructed (and even re-constructed) through understanding and reflection.

- **Thirdly**, if graduate attributes are viewed as discrete, self-contained items to be acquired, learning is regarded as a product. This view supports the acquisition metaphor of learning whereby the mind accumulates stable, discrete items. However, if graduate attributes are viewed as a process of learning, thus supporting the participation metaphor of learning, then the learning is regarded as either a product or a process. If learning is viewed as constructive process that involves three “... inseparable, mutually constituting planes” (Rogoff, 1995 in Hager, 2006:22), namely the institutional/community, the interpersonal and the personal plane, it allows more scope to view graduate attributes as “relational complexes that connect persons and particular contexts” to lifelong learning.
- **Second misconception:** Related to the acquisition metaphor often associated with learning, it is sometimes believed that graduate attributes can be acquired quickly and completely, ready to be used when needed. Hager (2006:24) points out that this “quick-fix” view of graduate attributes is often supported by employers and policy makers as a remedy to shortcomings in existing programmes. Yet, Hager (2006:24) argues that the development of graduate attributes is part of an ongoing and highly contextual process of learning, often best achieved in the workplace.
- **Third misconception:** Hager (2006:27) indicates that the individual student is often the focus of graduate attribute policies and development initiatives, yet many of the graduate attributes suggested by higher education institutions are distinguishing features of their graduates, and inherently social. He also emphasises that this pertinent focus on the individual is based on a view that “... skills are unitary, measurable traits that individuals possess” (Stasz & Brewer, 1999 in Hager, 2006:28).
- **Fourth misconception:** From the common sense understanding of learning, Hager (2006:29) states that it is often thought that “if we have really learnt well, we will be able to bring the learning to mind”. Graduate attributes are tacit in nature. The learning of the skills, abilities, qualities and dispositions associated with graduate attributes remains elusive and judging the quality of graduate attributes acquired by students is difficult and involves speculation (Hager, 2006:30).
- **Fifth misconception:** Due to the tacit nature of graduate attributes, Hager (2006:31) suggests that lists and descriptions of graduate attributes can at best be “rough and ready guides”. It is simply not possible to describe graduate attributes unequivocally and therefore Hager (2006:31) poses a warning that lists and descriptions will have

inherent limitations and disadvantages. He furthermore argues that since educators make inferences about a student's attributes on the basis of his/her performance, the very nature of the capabilities, abilities and skills associated with graduate attributes will always involve assumptions.

2.6.4. Key principles of understanding graduate attributes

In order to gain a more truthful and comprehensive understanding of the nature of graduate attributes, it is important to consider the key principles which are related to the five misconceptions described above, as explained by Hager (2006) and other prominent researchers:

- **Principle 1: Viewing learning as a process not as a product:** In conversations with academic staff members of the Cape University of Technology about vocational and professional higher education curricula, it is not uncommon to hear that more subject content (a way for filling the so-called "gap") should be added to the existing curriculum as a response to complaints from industry and employers. This point of view is based on what Hinchliffe (2006:95) refers to as a "knowledge deficit", with a focus on knowledge both as an asset and commodity. If the knowledge that students store in their minds is regarded as inadequate, based on what they have learned in a career-oriented programme, the assumption is made that this "knowledge deficit" will be addressed by adding more subject content as discrete, self-contained items to the academic programme. This notion of graduate attributes relates to the conception of learning as a product, a mere acquisition of relevant (and sufficient) subject-related information, often regarded as "stable, discrete substances or atoms" that will provide a "quick-fix" to perceived shortcomings (Hager, 2006:22).
- **Principle 2: Paying attention to the holism of graduate attributes:** Related to the notion of graduate attributes as a product consisting of stable, discrete and isolated things to be added to a higher education curriculum, many universities worldwide have spent time and energy on defining a list of graduate attribute statements, hoping that it will result in the effective implementation of graduate attributes in the curriculum. Hager, Holland and Beckett (2002:7) and Hager (2006:34) warn that universities identifying graduate attributes need to avoid the danger of treating them as "a simple mechanistic list of separate traits", while in fact they should not be regarded as individual elements to be added to a curriculum, but as "a mix of knowledge, skills and dispositions" that overlap and interweave "like the threads in a carpet". In other words, the holism of graduate attributes should be acknowledged within the context of real life practice as confirmed by Hager (2006:35):

This holism of generic attributes and the requisite capacity to deploy them seamlessly in appropriate ways in changing conditions and contexts, means that in a significant sense one's generic attributes capacity is a reflection of the kind of person one is. Thus, having well-developed generic attributes may have the effect of improving self-esteem and self-confidence.

- **Principle 3: Taking account of the social nature of learning:** Earlier in this section it was argued that a common misconception of the nature of graduate attributes is to regard these as qualities acquired by individual students in isolation. Hager (2006:36) argues that this adoption of the individuality assumption is rooted in the emphasis on the human capital theory which underpins educational policies in many countries, especially where the development of competencies is foregrounded. On the other hand, it is not desirable to merely replace an exclusively individual learning focus with a social learning focus, since the diverse nature of graduate attributes requires an appropriate blend of both individual and social or communal learning aspects. Social learning theories such as those proposed by Lave and Wenger (1991) and Engestrom (2001) in Hager (2006:37) recognise that workplace learning and performance are significantly shaped by social, organisational and cultural factors, hence extending beyond the individual.
- **Principle 4: Acknowledging the contextuality of graduate attributes:** Graduate attributes are strongly shaped by the particular features of the context in which the work is performed in the workplace. This notion of context is influenced by various workplace related factors such as: history of the workplace, culture and norms, work practices, economic and social environment, strategic needs, technology and the extent and intensity of the change impacting on the context (Hager, 2006:38). Hager (2006, 39-41) draws three conclusions from research on the contextuality of graduate attributes, namely:
 - There is significant variation in the generic capabilities required across work sites within the same occupation. This is supported by evidence of research done by Gonczi, Curtain, Hager, Hallard and Harrison (1995), as described by Hager (2006: 39), on generic attributes applicable in occupations such as hairdressing.
 - The demands of unique and continually changing work contexts require adaptability, flexibility and ability to learn on the job to deal with novel situations in the workplace. This is supported by research done in the information technology industry by Hager, Holland & Beckett (2002) on recruitment practices of Hewlett-Packard Australia (Hager, 2006:41).
 - The importance of practical knowledge, often not an explicit part of higher education curricula, yet required in many professional situations as a range of

generic attributes or capabilities. Hager (2006:42) argues that the term “capability” may be useful as an overarching concept to reflect the clustering of attributes and skills.

- **Principle 5: Recognising the relevance of graduate attributes for lifelong learning:** Hager (2006:43) is of the opinion that the development of graduate attributes by higher education institutions is closely linked to their role of fostering graduates with a capacity for lifelong learning. He argues that instead of viewing graduate attributes as discrete, isolated items of learning that students learn through transfer of knowledge and skills, “generic attributes should be seen as learnt capacities to handle an increasing variety of diverse situations” (Hager, 2006:43). This calls for an iterative process of strengthening the links in the higher education curriculum to foster generic capabilities, the deployment of innovative teaching and learning strategies. It should be supplemented with feedback from employers and alumni about generic capabilities which are valued within the context of the workplace.

It is evident that over the past 25 years, many different terms have been used interchangeably where graduate attributes came under discussions. Yet, as university communities are struggling to identify what combination of knowledge, skills and attributes to include in their graduate attribute policy frameworks and implementation strategies, it is important to come to terms with the fundamental nature and purpose of these attributes.

2.7. Contextual issues related to graduate attributes in higher education

With reference to **Section 2** of this chapter on the alleged mismatch between the needs of the world of work and higher education, the most significant of the contextual issues related to the focus on graduate attributes in higher education can be summarised as follows:

- The requirements of the knowledge-based economy and the continuing impact of globalisation and new information technologies.
- The exponential pace of change.
- The need for individuals to maintain employability in this world of constant change which emphasises the importance of lifelong learning.
- The concept of the high performance workplace resulting in significant changes and restructuring.
- The importance of creativity, innovation, research and entrepreneurial skills to enhance competitiveness in globalised world markets.

In addition, the following contextual issues related to higher education are also impacting on the development of graduate attributes in higher education:

- Active, student-centred approaches to learning.
- Ontological turn in higher education.
- Lifelong learning.
- Vocationalisation of curricula in higher education.
- Work-integrated learning practices.

It is suggested that graduate attributes be situated within three overarching orientations:

- An attitude or stance toward the **world** (e.g. as an active, global citizen with a sense of social and environmental responsibility)
- An attitude or stance toward **knowledge** (e.g. critical and/or creative/innovative)
- An attitude or stance towards the **self** (e.g. as confident, capable, flexible, independent, responsible). (adapted from Barrie *et al.*, 2009a).

Related to these three overarching orientations, Bosanquet *et al.* (2010:106) confirm that four broad conceptions of the purpose of graduate attributes have emerged from literature, namely that of:

- Employability.
- Lifelong learning.
- Preparing for an uncertain future.
- Social and global citizenship.

These **four meta-concepts** are briefly discussed here with reference to both the international and national imperatives in an attempt to raise awareness of the key issues to be considered for embedding graduate attributes in the curriculum.

2.7.1. Employability

The continued expansion of higher education from the late 1980s, set against the context of a rapidly changing economy and employment market in many countries, has made employability a central concern for higher education institutions, as students have become more selective in their choices of fields of study and institutions. Yet, employability remains a complex problem, since many of the ways of enhancing employability pose challenges to the structure, system and culture of higher education institutions. Much of the debate about employability has been stimulated and led by government agencies and employer groups around the world (ACCI & BCA, 2002). It is argued that the concept of employability skills provides a bridge between the world of work and higher education.

2.7.1.1. What are employability skills?

Employability is regarded by various authors (Yorke & Knight, 2006:2; ACCI & BCA, 2002:5) to be a more complex construct than those of “key competencies” (see **Paragraph 2.6.1.1.**), and “core” and “key” skills (see **Paragraph 2.6.1.2.**). They point out that employers have identified the importance of personal attributes and qualities that contribute to employability. Bennett, Dunne and Carré (2000:23) indicate that the word “core” (mostly used in the United Kingdom) is “shrouded in semantic confusion and contested meanings”. These authors conclude that “core” is mostly regarded by teachers and students as related to disciplinary skills and “transferable” as non-disciplinary, generic skills (Bennett, Dunne & Carré, 2000:23). Curtis and McKenzie (2001:vii) indicate that the term “generic employability skills” captures the essence of how the debate about these skills have evolved. In their view, the word “generic” implies that “what is learned in one context can be applied in others”, while the word “employability” signals “a connection to the world of work that is dynamic and long-term in nature”, which implies qualities of resourcefulness, adaptability and flexibility (Curtis & McKenzie, 2011:vii). The word “skills” is widely used by both the world of work and in higher education.

At this point it is important to distinguish between employment as a graduate outcome and employability which relates to the teaching and learning of a wide range of knowledge, skills and attributes to support continued learning and career development. Based on the perceptions of approximately 800 students in the United Kingdom (UK), Glover, Law and Youngman (2002:294, 303) distinguish between “graduateness” as a set of qualities associated with a university graduate that came into effect as a result of knowledge, skills and attitudes, of having undertaken an undergraduate degree; and “employability”, defined as “enhanced capacity to secure employment”. These authors acknowledge a particular tension between “graduateness as a state after the completion of a course, and employability as an assessment of the economic worth of a student at that time”. Their investigation indicates that 80% of new entrants into UK higher education sought an opportunity for a better change of employment (Glover *et al.*, 2002:298), whereas final year students indicated that whilst the degree course was still seen as a means to an end, they have come to recognise that the university experience as a whole also resulted in a set of generic capabilities and qualities, such as: commitment, dedication, enhanced personal skills and the development of self-confidence. Although the majority of the students in this investigation placed emphasis on employability as their primary expectation, indicating that a university degree should ensure “a secure and profitable future”, it appears that the gains from graduateness or “wholeness of the university experience” were valued by many of

them. It is therefore important to acknowledge at this point that the notions of employability and graduateness are closely related and that both of these outcomes of higher education influence perceptions about the nature and role of higher education in modern society.

As mentioned before (see **Paragraph 2.6.1.2.**), Knight and Yorke (2004:9) offer the following definition of employability in an earlier publication forming part of the *Learning and Employability Series* under the auspices of The Higher Education Academy :

A set of achievements – skills, understandings and personal attributes – that make individuals more likely to gain employment and be successful in their chosen occupations (Knight & Yorke, 2004:9).

This working definition of Knight and Yorke was expanded in subsequent publications, to read as follows:

A set of achievements – skills, understandings and personal attributes – that make individuals more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy (Yorke & Knight, 2006:3).

This amended definition aligns with the four broad interrelated components of employability, or the “USEM account of employability” defined by Yorke and Knight (2006:5) namely:

- Propositional knowledge based on an **understanding of subject matter** relevant to the type and nature of higher education qualification.
- **Skilful practices**, characterised as procedural knowledge, often called generic skills as well as subject-specific skills.
- **Efficacy beliefs** or “self-theories” as defined by Dweck (1999) form part of a class of beliefs that affect the way people respond to new and difficult problems.
- **Metacognition** is an awareness of what one knows and can do and of how one learns more. Reflection is a metacognitive process which is widely associated with superior performance.

It is evident that this view of employability proposed by Knight and Yorke (2004: 36-49) moves beyond the common sense view of “key competencies” or “key or core skills” being a series of discrete, decontextualised competencies, which students simply acquire and then transfer to different contexts. Hager (2006:21) agrees that generic attributes are closely related to attitudes and dispositional qualities that “can be refined and modified by knowledge and reflection”.

It is generally accepted that students should acquire these attributes as some of the outcomes of successfully completing an undergraduate degree at university, and that these attributes will be of particular benefit to the individual, as well as to the workplace, the community and the economy in general. Although a certain set of skills, knowledge and

personal attributes may increase a graduate's chances to find suitable employment, it is important to acknowledge that a graduate is not simply the carrier of a set of skills, knowledge and personal attributes, since other factors such as the prevailing economic climate and the nature of the occupation in relation to demand from employers impact on employability. Employability skills are thus defined as "skills required not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions". (ACCI & BCA, 2002:3). Harvey (2003:3) states that employability encompasses more than developing attributes, techniques or experience just to enable a student to get a job, or to progress within a current career. It is about learning and the emphasis is less on "employ" and more on "ability". In essence, the emphasis is on developing critical, reflective abilities, with a view to empowering and enhancing the learner. Based on this account of employability skills, which resembles the work of Stephenson (1992) in Stephenson (1998:2) on capable people who should have the ability to:

- Take effective and appropriate action.
- Explain what they are about.
- Live and work effectively with others.
- Continue to learn from their experiences, both as individuals and in association with others, in a diverse and changing society.

Stephenson's view goes beyond employability at the point of completing a higher education qualification and securing a job, moving towards employability in the context of lifelong learning, while Jackson (2011) and Eraut (2009a) extend the concept of lifelong learning to include lifewide learning (see **Paragraph 2.4.4.**).

2.7.1.2. Criticism related to the notion and implementation of employability skills

Employability skills are often based on a technical-instrumental paradigm (Wheelahan, 2010:109), simple notions of transfer of learning (Hager, 2006:19), a narrowly defined context-dependent competency-based approach to knowledge and skills (Jansen, 2000; Wheelahan, 2010:133) and emphasis on performativity in the curriculum (Barnett, Parry & Coate, 2001), which shift the locus for determining educational outcomes to external stakeholders and away from disciplinary knowledge in higher education (Barnett *et al.*, 2001; Kruss, 2004:685).

Gonczi (2002:119) warns against adopting a "highly reductionist and behaviourist concept of competency" and argues in favour of "a relational approach to competence" which links attributes such as knowledge, skills, dispositions and values to the demands of tasks and

activities that individuals are required to undertake in their lives. Gonczi (2002:120) refers to this approach as the “integrated approach”, as it brings together the generic and the specific. This approach suggests that the performance of individual tasks and activities rests on more general capacities, such as reasoning and making judgements, as well as specific knowledge and individual dispositions. This approach to competence, is not supported by a dichotomy between specific competencies and key competencies, but supports the view that to perform specific activities will always entail some combination of knowledge, skills, dispositions and values, which points to a combination of key competencies as a holistic undertaking by the individual (Gonczi, 2002:120).

According to Hinchliffe (2006:91) discussions on graduate attributes over the past few years have been characterised by unrealistic expectations of what should be required of young graduates in their early twenties. He calls for a “realistic approach” to graduate employability by acknowledging that “graduates cannot possibly have all the knowledge, skills and abilities that are required of them”, but that part of employability should involve an awareness of the limits to achieving all of these during their studies, as well as an understanding of the interrelatedness of these attributes (Hinchliffe, 2006:100). Hinchliffe (2005:4) argues that the concept of employability amounts to a “pedagogy of the self” or “auto-pedagogy” which places unrealistic demands on individuals without, at the same time, addressing their learning and employment needs.

2.7.1.3. Employability skills in design education

In many countries around the world, governments have realised the importance of innovation, design and creativity to bolster a country's economy. Mr Will Hutton, Executive Vice-Chair of the Work Foundation of the Design Council of the United Kingdom states the following in a publication titled *Design in the knowledge economy 2020*: “By 2020, the UK must create a balanced and sustainable knowledge economy with design as a critical and central part. There is no other option” (Design Council, 2010a). Hutton (Design Council, 2010a) claims that design is at the core of the knowledge economy, and is one of the coping stones of an innovation system, as it forms the “bridge between the consumer questing for the experiential and the company trying to meet that appetite with an offer that presents the new in a user-friendly and innovative way”. Many designers worldwide sense that they are a critical moment and that design industry is on the cusp of radical change. Sands and Worthington (Design Council and Creative & Cultural Skills, 2007:1) indicate that “the changing world offers a huge challenge to designers, along with many opportunities to create new markets and different ways of working. It's an exciting time for design – as long as we

can take on these challenges". One of the many challenges facing the design industry worldwide is the acknowledgement that with design projects becoming more complex, interdisciplinary and internationally, as well as customers being more discerning, higher education institutions offering design programmes must address the critical shortcomings of its graduates. In a survey conducted by the Design Council of the United Kingdom in 2006, the following skills, in order of priority, were lacking: business management, understanding the client's business, verbal communication of ideas, teamwork skills, drawing skills and creativity. This study has indicated that there is a significant gap between the professional skills required by employers and those being taught and learnt in colleges and universities (Design Council and Creative & Cultural Skills, 2007:27). The United Kingdom Design Industry Skills Development Plan developed by the Design Council in collaboration with Creative & Cultural Skills in 2007 suggests that more designers with very deep expertise in one discipline, but some knowledge and skills in a wide range of other domains, are needed. They maintain that one way of developing these complementary skills would be to introduce multidisciplinary teams in design education. This Skills Development Plan states that "although multidisciplinary teams occur frequently in design practice, they are much rarer in education, where the subject "silos" make collaboration more difficult" (Design Council and Creative & Cultural Skills, 2007:26). In addition, the importance of understanding the needs of the commercial design world has also been highlighted as an important component lacking in current higher education design programmes. The Skills Development Plan (Design Council and Creative & Cultural Skills, 2007:26) indicates:

Design students are also enthusiastic about greater connections between academic study and the commercial world. A recent survey revealed that graduates recognise the importance of business skills. Most said these are taught on their courses, but that this knowledge is not regarded as a critical part of their courses and is often undervalued when work is assessed.

At a strategic level, the Skills Development Plan proposes that designers need skills to enable them to better understand business drivers and markets and to work with senior management across a range of industries and disciplines (Design Council and Creative & Cultural Skills, 2007:28).

2.7.2. Lifelong learning

According to Jarvis (1999), the concept of lifelong learning has come to the fore in recent years as a result of globalisation, the impact of a knowledge-based society and changes in knowledge production, trends in adult learning, and forces of a rapidly changing world impacting on higher education. It is evident from strategic policy statements of many government agencies and universities that lifelong learning is a commonly espoused quality

of higher education graduates (Candy, 1995; Barrie, 2006a:149). Bligh (1982) in Bath and Smith (2009:173) suggests that lifelong learning has been characterised as the “capacity to respond flexibly to changing circumstances, to learn throughout a career, and to integrate theory and practice ... to deal capably with previously unmet situations”. Candy, Crebert and O’Leary (1994) state that lifelong learning is also about embracing learning in a variety of formal, informal, planning and opportunistic settings (Bath & Smith, 2009:174). Candy (1995) proposes five key attributes of the lifelong learner:

- An inquiring mind (love of learning, sense of curiosity).
- Helicopter vision (awareness of how knowledge is created and limitations of this).
- A sense of personal efficacy (positive self-concept as a learner).
- Information literacy (skills to research, manage, evaluate information).
- Repertoire of learning skills (knowledge of own strengths, range of strategies and ability to apply these). (Bath & Smith, 2009:175).

When comparing this set of key attributes of the lifelong learner with the competencies of the DeSeCo project list in **Table 2.9**, the resemblance is evident.

2.7.2.1 OECD DeSeCo project

The OECD initiated two important projects directly related to the promotion of lifelong learning and the development of competencies, namely: the Definition and Selection of Competencies (DeSeCo) Programme and the Programme for International Student Assessment⁵ (PISA). In 2001 when Education Ministers of the Organisation for Economic Co-operation and Development (OECD) countries met to review progress on lifelong learning since the publication of the 1996 OECD publication: *Lifelong learning for all*, the group identified the need to obtain clarity on the kinds of competencies needed in the developing knowledge economy, and whether these identified competencies were part of the traditional school curriculum (Gonczi, 2006:109). The DeSeCo project, initiated in 1997 and managed by the Swiss Federal Statistical Office, developed in a conceptual framework related to key (or generic) competencies over a period of four years. Twelve countries participated in the discussions namely: Austria, Belgium (Flanders), Denmark, Finland, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, and the United States. Academics from the disciplines of philosophy, anthropology, economics, sociology and psychology were part of this project.

⁵PISA is an international study which commenced in 2000. It is aimed at evaluating education systems worldwide by testing the skills and knowledge of 15-year-old students in participating countries/economies. Since the year 2000 over 70 countries and economies have participated in PISA.

Although this development was part of the OECD's broader international focus on lifelong learning, the DeSeCo project was seeking to redress the relative neglect of theoretical insights which has been a feature of the development of key skills/key competencies in countries such as Australia and the United Kingdom (see **Paragraph 2.6.1.1.** and **Paragraph 2.6.1.2.** for more information). The project was guided by questions such as:

- Is it possible to identify competencies which are needed for successful participation in a variety of fields of life?
- How can such competencies be theoretically justified?
- Are such competencies interdependent?
- Are different competencies needed in different phases of life?
- How can indicators of these competencies be developed?

The OECD embarked on an extensive and rather expensive investigation to find answers to these questions. Gonczi (2006:111) reports that a number of activities were undertaken such as: an analysis of international studies of educational indicators; a study reviewing scholarly work on the concept of competence; expert papers on key competencies by academics from different disciplines and different countries and comments from practitioners and policy makers. These were discussed and presented at two symposiums, one in 1999 and the second in 2002. The work culminating in the second symposium was based on the approach that “the desired outcomes of education are broader than subject-related knowledge, and are acquired beyond formal schooling, and that these outcomes are a preparation for life in all its facets” (Gonczi, 2006:112). Evidence of this approach as a result of consultation across a broad spectrum of disciplines can be seen in the classification of competencies into three broad categories as listed in **Table 2.9**.

Gonczi (2006:113) indicates that the multidisciplinary nature of the DeSeco project had the advantage that it had enabled new perspectives and insights to be brought to bear on the project, yet the range of different perspectives produced a large number of competencies with consensus limited to only a few very broad areas. Keagan (2001) in Gonczi (2006:116) argues that while there are differences between the different perspectives, “all the contributors argue for a level of mental complexity ... this mental complexity goes beyond a socialised mind to what he calls the self-authoring mind” – a critical and reflective individual stance or “internal authority”. This perspective relates to the notion of engaged learning and self-authorship of Hodge *et al.* (2009) as mentioned in **Paragraph 2.4.4.** of this chapter as well as the concept of lifewide learning (Jackson, 2011) in the next paragraph.

Table 2.9: Key competencies of DeSeCo project

Category	Rationale for selection	Definition of key competency
Using tools interactively	Individuals encounter the world through cognitive, socio-cultural and physical tools and using these tools interactively requires more than having access to these tools and having the necessary technical skills to handle them. Individuals need to keep up to date with technologies, be able to adapt tools for their own purposes and need to conduct active dialogue with the world.	<ul style="list-style-type: none"> • The ability to use language, symbols and text interactively. • The ability to use knowledge and information interactively requires individuals to: <ul style="list-style-type: none"> ○ Recognise and determine what is known. ○ Identify, locate and access appropriate information sources. ○ Evaluate the quality, appropriateness and value of that information, as well as its sources. ○ Organise knowledge and information. • The ability to use technology interactively requires individuals to develop a familiarity with technology and to extend its uses.
Interacting in heterogeneous groups	Human beings are dependent on others for material and psychological survival, as well as in relation to social identity. It is therefore important to deal with diversity, show empathy and build social capital.	<ul style="list-style-type: none"> • The ability to relate well to others requires: <ul style="list-style-type: none"> ○ Empathy which leads to self-reflection. ○ Effective management of emotions – being self-aware and able to interpret effectively one’s own underlying emotional and motivational states and those of others. • The ability to cooperate requires individuals to have certain qualities such as: <ul style="list-style-type: none"> ○ Ability to present ideas and listen to those of others. ○ An understanding of the dynamics of debate and following an agenda. ○ Ability to construct tactical and sustainable alliances. ○ Ability to negotiate. ○ Capacity to make decisions that allow for different shades of opinion. • The ability to manage and resolve conflicts which requires individuals to: <ul style="list-style-type: none"> ○ Analyse the issues and interests at stake. ○ Identify areas of agreement and disagreement. ○ Reframe the problem. ○ Prioritise needs and goals, deciding what they are willing to give up and under what circumstances.
Acting autonomously	Individuals must act autonomously in order to participate effectively in the development of society and to function well in different spheres of life.	<ul style="list-style-type: none"> • The ability to act within the big picture by understanding systems and context. • The ability to form and conduct life plans and personal projects by understanding and applying the concept of project management. • The ability to assert rights, interests, limits and needs across a wide range of contexts.

Source: OECD, DeSeCo project (2001)

From a design education perspective, continuous professional development has been identified as a key aspect to ensure that designers stay abreast with the latest developments in their field of specialisation. Yet the Design Council of the United Kingdom in its industry Skills Development Plan (Design Council and Creative & Cultural Skills, 2007:28) states that “current provision of training courses and programmes for practitioners is patchy and sometimes difficult to find” and recommends that design students should be provided with support to identify and pursue appropriate career paths, within and outside the industry.

2.7.2.2. Lifelong and lifewide dimensions of learning

Jackson argues (2011b:2) that “as we develop deeper understandings about the sorts of learning and development that are required for living a successful and fulfilled life in a complex modern world, it becomes more and more apparent that our educational institutions need to pay more attention to developing learners as whole people”. He continues by challenging higher education to extend its primary focus of cognitive development to adopt a lifelong and lifewide concept for learning and education by facilitating learner progression towards complex learning achievements as are embodied in the principles and practice of self-authorship (Jackson, 2011b:2). The concept of lifewide learning promoted by Jackson (2011) is different from the concept of lifelong learning in the sense that lifelong learning occupies different spaces through the lifespan – “from cradle to grave” – while lifewide learning is learning in different spaces *simultaneously* (Barnett, 2010). Lifelong learning requires the use of lifelong learning trajectories, while lifewide learning contributes to “the holistic development of a person and offers the potential for individuals to develop along some of their learning trajectories through different parts of their lives simultaneously” (Eraut, 2009b). The concept of lifewide learning relates to the notion of graduate attributes in the sense that it embraces a graduate’s experiences in its totality of cognitive, personal and social development and is fundamentally concerned with the way a person creates, engages with and makes sense of his/her own experiences. The HE focus is therefore not only on the preparing graduates with employability skills to gain employment, but to provide “a more holistic vehicle for encouraging and supporting self-actualisation than a traditional higher education approach that focuses primarily on disciplinary learning” (Jackson, 2011b:4). In order to develop students’ capabilities in a holistic manner, Jackson (2011a) suggests that HE curricula should:

- Empower students to make choices so that they can find deeply satisfying and personally challenging situations that inspire and engage them.

- Enable students to experience and appreciate knowledge and knowing in all its forms, enabling them to experience and appreciate themselves as knowers, makers, players, narrators and enquirers.
- Enable them to appreciate the significance of being able to deal with situations and see situations as the focus for personal and collective capability. They need to be empowered to create new situations individually and with others by connecting people and transferring, adapting and integrating ideas, resources and opportunities, in an imaginative, wilful and productive way, to solve problems and create new value.
- Prepare students for and give them experiences of adventuring in uncertain and unfamiliar situations.
- Enable them to develop and practice the repertoire of communication and literacy skills they need to be effective in a modern world.
- Encourage them to behave ethically and with social responsibility.
- Engender their commitment to personal and cooperative learning and the continuing development of capability for the demands of any situation and the more strategic development of capability for future learning.

The researcher supports Jackson's view and will explore these propositions in **Chapter 5** of this dissertation.

2.7.3. Preparing for a world of supercomplexity

Bowden and Marton (1998), Barrie (2006), Jackson (2010, 2011) and others argue that graduate attributes hold the potential to transform higher education curricula, teaching and learning. Barnett (2004:247) asks the questions: "What is it to learn for an unknown future?", arguing that this question deserves more attention, especially if viewed from the perspective that learning for an unknown future should be considered as "a major organizing principle in the design of the curriculum and in the enacting of the pedagogy". He indicates that although generic skills could be regarded as a way to address learning for an unknown future, it would be more appropriate to argue that "learning for an unknown future has to be a learning understood neither in terms of knowledge or skills but of human qualities and dispositions" (Barnett, 2004:247). Barnett (2004:248) indicates that it is perhaps more useful to focus on what is in fact different and distinctive about the modern world. From this point of view, it is evident that it "is not the change per se, but its character, its intensity, its felt impact". To this end, Barnett (2004: 250) refers to the world of "supercomplexity" and indicates that this is related to the character of modern universities associated with producing new ideas and frameworks of understanding that contrast with convention. He argues that the educational tasks of universities are to prepare students for a complex world, but more

importantly, to prepare students “to prosper amid supercomplexity, amid a situation in which there are no stable descriptions of the world, no concepts that can be seized upon with any assuredness, and no value systems that can claim one’s allegiance with any unrivalled authority” (Barnett, 2004:252). Barnett (2004:259) also points out that learning for an unknown future cannot be accomplished by merely focusing on knowledge or skills, it requires an ontological turn and “calls for a transformatory curriculum and pedagogy”.

In this world of incessant change, Barnett (2000, 2004, 2006) claims that people’s beliefs, values and hold on the world are continually contested and that this constitutes an ontological challenge for higher education. He argues that higher education institutions have a number of responsibilities to prepare students for a world of constant change and uncertainty, by:

- **Undergoing a fundamental shift**, acknowledging that the crucial education problem of a changing world is neither one of knowledge nor of skills, but one of *being*. In response, higher education institutions should place forms of *being* at the centre of their concerns by developing graduate attributes in the context of lifelong learning (Barnett, 2006:51).
- **Approaching the curriculum as an ontological project** – a vehicle not only for the acquisition of knowledge and skills, but for living effectively in a world of supercomplexity. The types of situations in which graduates are likely to find themselves in their professional and personal lives hold a range of complexities related to economic, technological, structural, social and ethical problems. Higher education curricula should incorporate “moments of supercomplexity in the curriculum” to equip students for situations that bear “multiple descriptions and the handling of multiple identities and value conflict” (Barnett, 2006:53). In addition, Barnett (2006:54) postulates that this ontological project is in fact a lifelong challenge as human beings are required to respond anew to challenges presented by this age of supercomplexity on a continuing basis. It is therefore important to equip students with skills of self-reflexivity as well as engagement with the wider community and environment.
- **Developing authenticity and a strong sense of self** through higher education programmes that encourage students to “not just ... believe in what they say, do and feel but also to be able to back up those utterances, interventions and intuitions through their own reasoning”, underpinned by legitimacy in the form of disciplinary and/or professional standards. (Barnett, 2006:57). This focus on individuality in HE

curricula is regarded by Barnett (2006:59) as an integral part of a “continuing remaking of the self” linked to a stronger emphasis on the role of higher education in offering lifelong learning opportunities.

- Acknowledging that graduate attributes, according to Barnett (2006:61), should not “primarily be construed as sets of skills or even knowledges”, but as certain kinds of **human dispositions and qualities**. Qualities such as courage, resilience, fortitude and quietness as well as dispositions such as an orientation towards self-change, engagement with the world of incessant change and unpredictability, inquisitiveness and a will to communicate – these are some of the necessary attributes in a world of uncertainty (Barnett, 2006:61).

From a design education perspective, as stated earlier in this section (see **Paragraph 2.7.1.3.**), it is essential to respond to the many challenges brought about by the rapid global change as indicated by Sir Christopher Frayling, Rector of the Royal College of Art in the United Kingdom (Design Council and Creative & Cultural Skills, 2007:30):

We need to equip all students with an understanding of business and technology – in addition to the creative skills at which they already excel – if they are to use their skills to the full.

Higher education institutions are prompted to complement the range of particular specialisations in design education to include subjects such as strategy, consumer behaviour, brand development, marketing, business management, account and project management (Design Council and Creative & Cultural Skills, 2007:31) and to develop analytical and problem-solving skills in addition to creativity, imagination, resourcefulness and flexibility.

2.7.4. Agents of social good in society

UNESCO’s World Declaration on Higher Education for the 21st Century (1998) focuses, among other aspects, on the important relationship between higher education and the world of work and developing a sense of social responsibility:

As a lifelong source of professional training, updating and recycling, institutions of higher education should systematically take into account trends in the world of work and in the scientific, technological and economic sectors.

Higher education institutions should give the opportunity to students to fully develop their own abilities with a sense of social responsibility, educating them to become full participants in democratic society and promoters of changes that will foster equity and justice.

The fourth conception of social justice is closely related to the conception of addressing the needs of an unknown and uncertain future. Bowden, Hart, King, Trigwell & Watts (2000)

argue that graduate attributes serve to prepare students to be “agents of social good in an unknown future”. This view is supported by Barrie (2004:269) who indicates that one of three overarching attributes of the University of Sydney is that of global citizenship helping graduates to “aspire to contribute to society in a full and meaningful way through their roles as members of local, national and global communities”. Bosanquet (2010) indicates that global citizenship is an ambiguous and contested notion often described by institutions in their graduate attributes statements as “intercultural awareness, cross-cultural competency, inclusivity, diversity, globalisation, sustainability, leadership, multiculturalism, internationalisation and community engagement”. She also points out that the statements concerning graduate attributes and their justifications by a number of Australian higher education institutions indicate a shift towards community engagement and experiential learning (Bosanquet, 2010). Hanson (2008:80) in Bosanquet (2010) confirms this focus on community engagement as described in a Canadian student’s conception of global citizenship:

A good global citizen is involved locally, nationally and internationally; is conscientious, informed and educated about issues; exhibits environmental and social responsibility; advocates alongside of the oppressed; or lives by the dictum, ‘Be the change you want to see in the world’.

From a design perspective, it is necessary for higher education students, as socially responsible citizens, to develop skills for addressing environmental and sustainable development challenges. Mann, Dall’Alba and Radcliffe (2007) report on a phenomenographic study on sustainable design conducted at Australian higher education institutions that changes in curricula ranged from minor interventions, to course adaption, and to a few bold efforts to equate education to the new situation of sustainability. Sustainable design education at university is often seen as “an add-on to existing engineering courses and programs, rather than as an integral part of the curriculum” and that a reductionist approach is being used, namely by separating content in the form of knowledge, skills and values from professional practice (Mann *et al.*, 2007:2). These authors refer to a process of decontextualisation and fragmentation in what Schön (1995) terms the “normative professional curriculum” whereby students are taught the relevant basic science in the first year, followed by relevant applied science in the second year and a practicum in the third year when classroom knowledge is applied to problems of everyday practice. This means of developing a curriculum resembles the way curricula had been developed by Universities of Technology (formerly Technikons), with experiential learning as a period of work-based placement added to the programme during the third year. In the phenomenographic study conducted by Mann *et al.* (2007:18) the outcome space of

sustainable design based on the qualitatively different ways that sustainable design are experienced by designers in practice indicated that it ranged from being solution focused (finding a solution to either the product or process(es) to satisfy a client's requirements to decrease the associated environmental, social and economic impact) to being a way of life (where all design problems, professional and personal, are solved as part of a way of life to increase the environmental, social and economic value of the outcome to both the individual and society). Mann *et al.* (2007:23) argue that the implications for curriculum design are that students need to be exposed to holistic problem solving. The problem posed should require students to look at a problem in a holistic rather than in a reductionist way, while the focus of learning should shift away from the transfer of knowledge, skills, attitudes and values towards developing a professional way-of-being.

2.7.5. Concluding remarks on conceptual and contextual issues related to graduate attributes

Hager (2006:17) contends that simplistic notions of learning transfer which have been abandoned by educational theorists and researchers are still prevalent in the assumptions that educational policy makers hold about learning. Employability skills, generic attributes, key skills, and learning to learn skills are, according to Hager (2006:17), still clear examples of political rhetoric and educational policies in many countries, based on these simplistic notions of learning transfer. Based on a transfer metaphor of learning, these skills and attributes are regarded as being a series of discrete, decontextualised atomic elements or competencies, which individuals are to acquire one by one. Hager (2006:17) indicates that it is also incorrectly assumed, that once these discrete, decontextualised elements or competencies are acquired, they can be transferred unproblematically to diverse contexts.

However, graduate attributes are not a series of discrete, decontextualised atomic elements or competencies that can be acquired by individuals and easily transferred to diverse contexts and workplace settings, they are “the qualities, skills and understandings a university community agrees its students should develop during their time with the institutions” and “go beyond the disciplinary expertise and technical knowledge that has traditionally formed the core of most university courses” (Bowden *et al.*, 2000). Moreover, these authors view graduate attributes as “qualities that also prepare graduates as social agents of social good in an unknown future” (Bowden *et al.*, 2000). Similarly, Barrie (2006b:217) defines generic graduate attributes as “the skills, knowledge and abilities of university graduates, beyond disciplinary content knowledge, which are applicable in a range of contexts and are acquired as a result of completing any undergraduate degree”. Hager (2006:42) is of the opinion that these understandings, skills and abilities should rather be

referred to as generic capabilities (Hager, 2006:42). What then are these capabilities? According to Stephenson (1992:2):

Capability is a necessary part of specialist expertise, not separate from it. Capable people not only know about their specialisms; they also have the confidence to apply their knowledge and skills within varied and changing situations and to continue to develop their specialist knowledge and skills long after they have left formal education.

Capability is not just about skills and knowledge. Taking effective and appropriate action within unfamiliar and changing circumstances involves judgments, values, the self-confidence to take risks and a commitment to learn from the experience. Involving students in the decisions which directly affect what they learn and how they learn it develops a sense of ownership and a high level of motivation.

In order to achieve these capabilities, academics have to challenge their conception of knowledge and skills, as well as how these capabilities should be achieved in higher education. This calls for an ontological turn in higher education (Dall'Alba & Barnacle, 2007), acknowledging that knowing and being are interdependent, hence epistemology and ontology are inseparable. Dall'Alba (2004, 2005) in Dall'Alba and Barnacle (2007:683) proposes that:

Knowledge remains important, but the focus is no longer knowledge transfer or acquisition. Instead, knowing is understood as created, embodied and enacted. In other words, the question for students would be not what they know, but also who they are becoming. Rather than treating knowledge as information that can be accumulated within a (disembodied) mind, learning becomes understood as the development of embodied ways of knowing or, in other words, ways-of-being.

In the next section the conceptions and orientations of academics regarding the attainment of graduate attributes will be explored, keeping in mind that a mere transfer and acquisition of knowledge in teaching and learning will not suffice. "Instead, higher education programmes need to re-orient their focus by assisting students to integrate knowing, acting and being. In so doing, emphasis is placed on learning and its enhancement" (Dall'Alba & Barnacle, 2007:686) which entails that academic staff will be empowered to transform their educational practice on a continuous basis to promote ways of being. Barnett (2004:260) states that "a pedagogy for an unknown future becomes a pedagogy with the unknown built into it as living principles of educational exchanges and accomplishments". This implies that academics' orientations towards higher education curricula forms part of an ongoing lifelong learning process – a task that is simply never completed.

2.8. Conceptions and orientation of academic staff members related to graduate attributes in the curriculum

Cornbleth (1990:12) in Fraser and Bosanquet (2006:282) argues "how we conceive of curriculum and curriculum making is important because our conceptions and ways of reasoning about curriculum reflect and shape how we see, think and talk about, study and

act on the education made available to our students”. Conceptions of the curriculum relate to what academics perceive the curriculum to be, both the “curriculum-as-designed and the curriculum-in-action” (Barnett & Coate, 2005:3). Curriculum orientation is often defined as a collective set of beliefs about the intended, taught and experienced curriculum elements including statements of intent, programme conceptualisation, organisation and implementation (Chueng & Wong 2002).

2.8.1. Curriculum orientations

2.8.1.1. Fidelity, adaptation and enactment approaches to curriculum development

Snyder, Bolin and Zumwalt (1992) in Shawer, Gilmore and Banks-Joseph (2008:1) argue that (higher education) teachers usually adopt one of the following approaches or orientations to curriculum: fidelity, adaptation or enactment. These approaches to curriculum development and implementation and the role of the teacher are described as follows by Snyder *et al.* (1992) in Shawer *et al.* (2008):

- The **fidelity approach** emerges where curriculum change occurs through a centrally-controlled model which confines the role of the teacher to be a **curriculum-transmitter**. The teacher using this approach focuses mainly on covering the subject content and the curriculum documentation of this approach consists mainly of topics sub-divided into weekly teaching sessions. Limited evidence is available on how students will be encouraged to learn; the focus is mainly on imparting information and delivering instruction.
- The **adaptation approach** entails that teachers are more actively involved by suggesting adjustments to the curriculum. Although teachers would adapt existing materials and topics, add new topics, leave out irrelevant elements of the curriculum, respond to student diversity and experiment with various teaching methods, the official curriculum, (similar to the fidelity approach) is still managed centrally and externally. It is important to note that the adaptation approach often does not involve communication between the external curriculum developers and the teachers who teach the curriculum in terms of the adaptations made by the teachers. The role of the teacher in this approach is to adapt the official curriculum to suit the needs of relevant stakeholders such as students and employers. The role of the teacher is to be that of a **curriculum-developer** (Shawer *et al.*, 2008:7).
- The **enactment approach** suggests that curriculum is a result of the engagement and enactment of both teachers and students in teaching and learning experiences based on the curriculum. The role of the teacher in this approach is not to adapt the official curriculum to suit the needs of students and stakeholders, but to respond to

the needs of students and stakeholders by creating a curriculum. These authors state that “the teachers have become **curriculum-makers** who assess students’ needs to derive curriculum themes, use strategies of curriculum-planning, curriculum-design, material-writing and curriculum-free topics. In addition, they improvise, develop and use their pedagogic techniques” (Shawer *et al.*, 2008:3).

2.8.1.2. Conceptions of teaching and student learning

Curriculum conceptions and orientations of academics relate to their conceptions of teaching in higher education. Research conducted over the past few years into teachers’ approaches to teaching in higher education was directly modelled on the concepts, methods and findings of research into students’ approaches to learning. Prosser and Trigwell (2006) developed the Approaches to Teaching Inventory (ATI) to examine the relationship between students’ approaches to learning and teachers’ approaches to teaching. This relationship is outlined in **Figure 2.6** in a model originally developed by Dunkin and Biddle (1974), and more recently by Biggs (1993). The model shows the relationship between characteristics of the students and teachers, the designed teaching and learning context, students’ and teachers’ approaches to learning and teaching and the outcomes of learning and teaching.

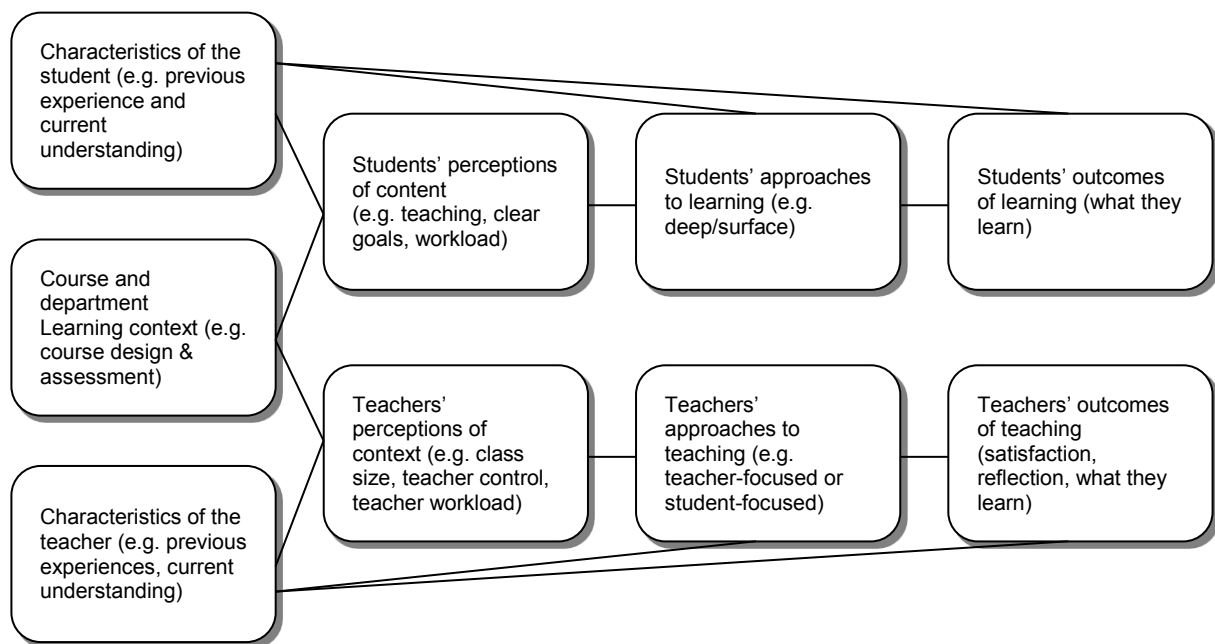


Figure 2.6: Model of teaching and student learning

Source: Prosser and Trigwell (2006:406)

Richardson (2005:676) indicates that the study of Trigwell and Prosser (1993) identified five different approaches to teaching: some approaches were teacher-focused and aimed at the transmission of information to students, while others were student-focused and aimed at

bringing about conceptual change in the students. Richardson (2005:678) also reports that this study revealed that teachers' conceptions of teaching resembled their approach to teaching. Carnell (2007:27) interprets these differences as follows: "Those who conceptualize teaching as transferring information see the teacher as pivotal. Those who conceptualize teaching as knowledge construction focus on student learning." Samuelowicz and Bain (1992, 2001) identified several conceptions of teaching as outlined by Carnell (2007:26):

- Imparting information.
- Transmitting knowledge.
- Facilitating learning.
- Changing students' conceptions.
- Supporting student learning.
- Negotiating meaning.
- Encouraging knowledge creation.

The first three of these conceptions of teaching are quantitative in nature and relate to the teacher as central to the learning process, while the last four of these conceptions are qualitative and seen as changing ways in which students perceive and apply knowledge. Two models of teaching have emerged from these studies, namely: instruction and construction. Quantitative conceptions of learning are encompassed by the instruction view with passive transmission of information, while qualitative conceptions of learning are encompassed by the construction view supporting student participation in learning, understanding and making sense of knowledge.

A two-year study of the teaching conceptions of American faculty by two authors of the book *Learning and Teaching in Higher Education: The Reflective Profession* by Light, Cox and Calkins (2009:28-31) revealed comparable conceptions of teaching which can be summarised into the following three categories:

- **Teacher-focused:** In this conception of teaching the teacher regards the practice of teaching as one in which he/she is the expert who imparts or transmits information to a passively receptive or compliant student. In this content-oriented conception, good teaching consists of having sound academic knowledge, which is well structured and clearly delivered or transmitted. Students are expected to accept the knowledge and content to them and the learning achieved is up to the individual student. Teaching is in essence a display of content by the teacher overheard by the student.
- **Student-focused:** The second conception of teaching focuses on the student as someone who will acquire the skills, knowledge/content and strategies for learning

that the teacher as expert already has. The teacher will, although retaining some features of the teacher-focused model, recognise that teaching needs to go beyond transmission and will attempt to play a more active role in helping students acquire the content of that transmission by developing teaching tips and strategies to connect the course content to students. Although the student is still a somewhat compliant participant in the learning process, a shared situation is created. The teacher provides the knowledge and skills to be acquired, yet he/she is more concerned about the students actually obtaining the knowledge and skills and about meeting the students' expectations. The teacher still defines and frames the knowledge, but through explanation and demonstration, rather than transmission. The teacher retains a view of teaching as monologue – although the focus on students' acquisition of the knowledge allows for some kind of dialogue with students and their minds.

- **Learning-focused:** This conception of teaching focuses on the students and on promoting conceptual change through a process of facilitating a student's construction of knowledge for him/herself. The learning process is characterised by an active and reflective construction of concepts. Knowledge is socially constructed by the student, and the exchange of that knowledge is based on an intersubjective dialogue of shared meanings between teacher and student. Good teaching is about helping students to improve and change their conceptual understanding. Teachers recognise that they are entering into a full dialogic relationship with students aimed at supporting students to develop (or even “reconstruct” themselves) as persons with a focus not merely on knowledge, but on developing a critical *being* as defined by Barnett and Coate (2005).

These three conceptions of teaching defined by Light *et al.* (2009:28-31) align somewhat with the approaches of curriculum development and implementation and with the role of the teacher in the curriculum design process as described by Snyder *et al.* (1992) in Shaver *et al.* (2008). Yet it is evident that the learning-focused conception of teaching (Light *et al.*, 2009) moves beyond the scope of the enactment approach, which prompts further investigation into the conceptualisation and orientations of academics in terms of graduate attributes in higher education.

Barrie (2006b:219) argues that the diversity of the descriptions of graduate attributes, the variation in the teaching and learning processes of curricula with regard to graduate attributes in different disciplines, and the “patchy” implementation of these graduate attribute outcomes in higher education prompt questions about the conceptual understanding and orientations of academics towards these outcomes. Although numerous lists of generic skills, employability skills, key competencies and other proficiencies have been published

over the past 25 years (as indicated through detailed discussions in previous sections of this chapter), Barrie (2006b:219) argues that there does not appear to be a conceptual framework that provides a way of understanding the different conceptions and orientations of academics in terms of graduate attributes. Difficulties with implementation could therefore be the result of a lack of a common understanding of the “what” and the “how” with regard to integrating graduate attributes in the curriculum.

2.8.1.3 Curriculum conceptions of academics

Fraser and Bosanquet (2006) conducted a phenomenographic study at an Australian university to explore the variation in the experiences and understandings of academic teachers with regard to curriculum. The study was based on the following questions posed to academics in semi-structured interviews:

- What is your understanding of curriculum?
- What experiences have you had of curriculum change?
- What are some of the things you see impacting on the curriculum?

According to Fraser and Bosanquet (2006:272) four distinct categories of description emerged from the data as presented in **Table 2.10**.

Table 2.10: Categories of description of academics' conceptions of curriculum

Category A Curriculum is the structure and content of a unit/subject	Category B Curriculum is the structure and content of a programme of study	Category C Curriculum is the students' experience of learning	Category D Curriculum is a dynamic and interactive process of learning
<ul style="list-style-type: none"> • Curriculum is defined by what is taught in the individual unit or subject. • It is basically the content of what should be covered in the subject. • Curriculum is seen as a product to be delivered rather than one that can be actively and flexibly developed by the HE teacher or the students. • The development and implementation of the curriculum is the responsibility of the teacher and the student is the "consumer". • Curriculum change is difficult to achieve, since the relationship with other subjects is not important. • External and internal factors impact on the curriculum as the needs of professional bodies, the content offered by other universities, staff numbers, personalities and personal interests. 	<ul style="list-style-type: none"> • The curriculum is seen as a programme of study consisting of multiple units/subjects (compulsory, electives) sequencing of subjects. • It is also regarded as the solid, coherent core of a discipline. • The curriculum is also regarded as a product, however the academics in this category conceptualised it as bigger than a single unit and connected to the structure of the programme. • Content is prescribed. It is "a body of knowledge and a suite of skills". It consists of a discipline (name of qualification) sub-divided under subjects. • Professional requirements and the world of business/work impact on the curriculum. 	<ul style="list-style-type: none"> • Curriculum is viewed as a process that enables student learning. • The content and delivery of a unit, its structure within the programme as a whole, is an integral part of the curriculum, but is only one part of a broader process. • Curriculum includes "all that is intended and unintended in the transaction between a learner and teacher, in any context which is related to the topic at hand" • Subject content takes a secondary role; the focus is more on achieving particular learning objectives. • Students are at the centre of a flexible curriculum process and are able to explore with their HE teachers areas that suit their needs and motivations. 	<ul style="list-style-type: none"> • Curriculum is seen as a collaborative, dynamic process of learning with HE teacher and student acting as co-constructors of knowledge. It is regarded as a "living" thing. • It is different from Category C where teachers provide a framework within which students negotiate the curriculum. The structure is not predetermined or defined; rather, it emerges from the needs of students and the interactions between students, teachers and colleagues. • The overarching goal of the curriculum is to empower students so that they can become effective members of society. HE teachers therefore focus on challenging students' assumptions and views of the world.

Category A Curriculum is the structure and content of a unit/subject	Category B Curriculum is the structure and content of a programme of study	Category C Curriculum is the students' experience of learning	Category D Curriculum is a dynamic and interactive process of learning
<ul style="list-style-type: none"> • Students have a limited voice, restricted to feedback obtained from questionnaires – looking from the outside in – not an experience. • Curriculum change is limited to what is delivered and how it is delivered and resourced in a particular unit of study. 	<ul style="list-style-type: none"> • The changing nature of knowledge relevant to the discipline and research in the discipline would influence the structure of the curriculum and the learning goals. • It is the responsibility of the HE teacher to develop and deliver the curriculum in line with the factors influencing the curriculum. • Students are receptors of the curriculum, however, they may influence the teacher to change the content and its delivery, but do not play an active role in its construction. • Institutional culture impacts negatively on changing the curriculum, consequently curriculum changes results in adding extra units to the programme as electives, or providing students with increased flexibility of delivery (web-based learning). 	<ul style="list-style-type: none"> • The teacher's role is to define the process and ensure it is structured around an intended theoretical framework. • The framework of the curriculum emerges from research within the discipline, educational philosophy and pedagogical research as well as societal changes such as globalisation and internationalisation. • Curriculum change takes place as an ongoing dialogue between HE teachers and students, framed by the more holistic understandings of the HE teacher. • Discussions outside the teacher/student relationship are somewhat constrained by the limited understanding of other colleagues, institutional requirements and culture. • This type of process-focused curriculum change is often implemented by individuals in isolation. 	<ul style="list-style-type: none"> • The curriculum is seen as an interaction of knowledges, a shared process of change or a journey of learning which results in a transformation of world views. • The curriculum is not regarded as static, since it operates in a system that is constantly changing. • Curriculum development is constrained by the structure and culture of the institution, people's personalities and mental models and the agenda and paradigm of the discipline. • Curriculum should be achieved most effectively through the maintenance of a "community of scholars". • Curriculum should empower people to bring about change, not only in the university curriculum, but in the structure and functioning of society.

Source: Fraser and Bosanquet (2006: 271-277)

Fraser and Bosanquet (2006:279-282) used Habermas's three fundamental human interests, namely technical, practical (communicative) and emancipatory interest, to analyse and interpret the four categories of description listed in **Table 2.10**. A concise description of each of these three categories is provided below.

2.8.1.3.1. Curriculum from a technical interest

The function of the curriculum is to define and control student learning, and conforms to the teacher's original intentions for the curriculum. In this conception of the curriculum emphasis is on placed on unit (subject) outlines, and programme structure emphasises the extent of control that permeates formal education. The unit and programme structure exist prior to the arrival of the students, and these are perceived to be separate from the learning experiences students have while undertaking the programme. Rigid relationships of power operate in the learning environment with subject experts having the authority to determine the learning outcomes of the curriculum using a generic template for this purpose. These subject experts are normally involved in designing the curriculum in the light of their subject knowledge and their assumptions about student needs. The curriculum is designed as an authority of its own – external to the curriculum designer, and it can be taught by anyone who is sufficiently skilled. Knowledge is regarded as discipline-based and compartmentalised with subject content is an important aspect of the curriculum, selected by the teacher who also acts to constrain curriculum change. The saying: "I must cover the curriculum" applies in this conception. The curriculum is product-oriented, separate from its structural and sociocultural contexts, and therefore value-neutral. Cornbleth (1990:14) indicates: "... that ends are set, that means are known or knowable and that the path between them is a direct one. One therefore follows step-by-step procedures to obtain the predetermined end state (i.e. the finished curriculum product)".

2.8.1.3.2. Curriculum from a practical interest

The curriculum aims to analyse and clarify human experience, uncovering meanings, prejudices and presuppositions. Teachers act as interpreters of contemporary social and educational circumstances in order to provide an effective learning environment. The student and teacher interact to make meaning of the subject matter. Teachers are researchers of their own practice, seeking ways to improve learning. Reflective practice is at the heart of their teaching – student feedback on teaching is important and literature (own research on practice) contributes to the process of improvement. Teachers see their role as using their judgement in interpreting the curriculum for their students, and making meaning of the unit or programme of study and discipline for them. Since reflective practice is an

important component of how teachers view their curriculum, curriculum review is common practice. The curriculum review process takes place in an environment based on open communication, trust and mutual respect between teacher and students. Students are an important part of the curriculum, which implies that subject content is selected for the purpose of assisting meaning making and interpretation and that the curriculum approach is holistic and integrated. In this curriculum conception the focus is on student learning and not on the delivery of subject content by a subject expert.

2.8.1.3.3. Curriculum from an emancipatory interest

The emancipatory interest (critical pedagogy) strives for empowerment, rational autonomy and freedom. Teaching is a shared struggle towards emancipation and functions to challenge common understandings and practices, and to enable students and teachers to challenge the constraints of the (learning) environment. Grundy (1987:99) in Fraser and Bosanquet (2006:281) indicates that the end result of an emancipatory interest is “a transformation of consciousness in the way one perceives and acts in the world”. Grundy (1987) discusses such curriculum praxis in terms of three principles that serve as its basis:

- Learners should be active participants in the learning programme.
- The learning experience should be meaningful to the learner, and;
- Learning should have a critical focus (Fraser & Bosanquet, 2006:281).

Students are therefore seen as active creators of knowledge. Subject content is negotiated between the teacher and students, and students are the final authorities on what constitutes “authentic knowledge”, as they judge knowledge on both whether it is generally true and whether it is true for them (Fraser and Bosanquet, 2006:281). Curriculum becomes a dynamic process of interaction that changes the worldviews of the teacher and the students alike. Learning is regarded as a social act which consists of a dialogical relationship between the teacher and student. Curriculum is seen as a process which strives for social and intellectual empowerment – truly a negotiated process between teacher and students within an ever-changing environment. The power resides with the students as learning takes place within a community of scholars, with the ultimate aim of empowering them to be effective as members of society in general. The educational experience is negotiated, and the curriculum “emerges from the systematic reflection of those engaged in the pedagogical act” as described by Grundy (1987:103) in Fraser and Bosanquet (2006:281). Mc Taggart and Garbutcheon-Singh (1986:44) in Fraser and Bosanquet (2006:281) indicate: “Critical reflection involves more than knowledge of one’s own values and understandings of one’s practice. It involves a dialectical criticism of one’s own values in a social and historical context in which the values of others are crucial.” Although the vision of the curriculum is

boundary-less, it is however constrained by what is possible within the university structure and the extent to which academics with an emancipator interest are prepared or empowered to act as change agents.

In summary, **Table 2.11** provides a consolidated matrix of the curriculum and teaching conceptions based on the research of: Snyder, Bolin and Zumwalt (1992); Fraser and Bosanquet (2006); as well as that of Light, Cox and Calkins (2009:28-31). The commonalities in terms of the categories from these researchers' work are evident. Fraser and Bosanquet (2006:282) conclude by observing that in order to bring about effective curriculum change in higher education, it is important to obtain commitment from the academic community within an institution to develop a shared language and understanding of curriculum. A critical reflective process will enable academics to examine and comment on implicit assumptions. It also provides opportunities for sharing concerns and voicing aspirations.

Table 2.11: Matrix of academics' conceptions of curriculum and teaching based on literature

Categories of conception	Curriculum intent	Teaching practice	Role of HE teacher	Students' learning engagement	Role of students
<p>Technicist and transmission approach to curriculum and teaching</p>	<p>Content-oriented conception of curriculum. Curriculum is product-oriented. It controls students' learning engagement and conforms to the teacher's original intentions for it. Curriculum is well structured and clearly defined, often based on a generic template that outlines a subject-by-subject or unit-by-unit strategy with a predetermined curriculum product as end state.</p> <p>The curriculum is controlled by means of unit (subject) outlines and programme structures. Knowledge is regarded as discipline-based and compartmentalised.</p> <p>Curriculum is separate from its structural and socio-cultural contexts and therefore value-neutral.</p> <p>External factors such as the requirements of professional bodies and the world of work/industry impact significantly on the curriculum. Curriculum could even be prescribed by external bodies in some cases.</p> <p>Curriculum change is limited to what is delivered and how it is delivered and resourced with the possibility of adding extra modules/units to the programme or providing students with increased flexibility of delivery e.g. web-based learning.</p>	<p>HE teacher is the expert who mainly imparts information and delivery of instruction to passively receptive or compliant students.</p> <p>Teaching practice is aimed at covering the subject content.</p> <p>Teaching is mainly a display of content by the HE teacher overheard by students – soliloquy-monologue.</p> <p>Rigid relationships of power operate in terms of teaching and learning.</p>	<p>HE teacher is in control and selects the curriculum content.</p> <p>The role of the HE teacher to be a curriculum-transmitter – transmitting subject content using a structured linear unit-by-unit strategy.</p> <p>The saying: "I must cover the curriculum" applies.</p>	<p>Limited evidence is available on how teachers will encourage students to engage in learning.</p> <p>HE teacher does not respond to classroom dynamics, e.g. student profile and needs.</p> <p>Learning is conceptualised as acquiring more knowledge with emphasis on memorising and reproducing such knowledge.</p>	<p>Students are seen as "consumers" of knowledge.</p> <p>Passive and compliant students. Surface approaches to learning are prevalent.</p> <p>Students have either no or a limited voice in the curriculum and in teaching and learning strategies – restricted mostly to formal feedback obtained from questionnaires.</p> <p>Curriculum content does not necessarily meet students' individual needs and interests.</p>

Categories of conception	Curriculum intent	Teaching practice	Role of HE teacher	Students' learning engagement	Role of students
<p>Adaptation and student-focused approach to curriculum and teaching</p>	<p>Curriculum is viewed as a process that enables student learning.</p> <p>Although the subject content is still influenced by external factors it takes on a secondary role; the focus is more on achieving particular learning objectives as an integral part of the programme.</p> <p>The curriculum framework emerges as a result of external factors as well as research within the discipline, educational philosophy and pedagogical research.</p> <p>Curriculum change takes place as some kind of dialogue between HE teachers and students, framed by more holistic understandings of the HE teacher.</p> <p>Discussions outside the teacher/student relationship are somewhat constrained by the limited understandings as a result of external and internal factors impacting on the curriculum.</p> <p>This type of process-focused curriculum change is often implemented by HE teachers in isolation.</p>	<p>The HE teacher will, although retaining some features of the teacher-centred model, play a more active role in helping students to acquire the course content.</p> <p>The HE teacher defines and frames the knowledge, but through explanation and demonstration rather than transmission.</p>	<p>The role of the HE teacher is to adapt the curriculum to assist students with gaining knowledge and skills.</p> <p>The HE teacher provides strategies and tips to help students acquire knowledge and skills.</p> <p>The HE teacher's role is to define the curriculum process and to ensure that it is structured around an intended theoretical framework.</p>	<p>Student learning is facilitated by means of enhanced teaching strategies to improve acquisitions of knowledge and skills.</p> <p>Students play a more active role in learning.</p> <p>Classroom dynamics are taken into account when devising teaching strategy.</p>	<p>Students are still a compliant participant in the learning process, yet the teacher is more concerned about students gaining knowledge and skills and will provide support to enhance learning.</p> <p>Since the focus has shifted to enhancing students' learning, some form of dialogue with students provides feedback on the course content and teaching practice.</p> <p>More flexible curriculum process makes provision for students to explore, together with their HE teachers, areas that suit their individual needs and interests.</p>

Categories of conception	Curriculum intent	Teaching practice	Role of HE teacher	Students' learning engagement	Role of students
<p>Dynamic, interactive and learning-focused conception of curriculum and teaching</p>	<p>Curriculum is seen as a collaborative, dynamic process of learning with HE teachers and students acting as co-constructors of knowing, doing and being.</p> <p>Structure of the curriculum emerges from the needs of students and the interactions between the HE teacher and students as part of a shared process of change or a transformative journey of learning.</p> <p>The curriculum is not predetermined or static, but dynamic, interactive and holistic in nature, operating within the dynamic contexts of a changing world.</p> <p>The overall goal of the curriculum is to empower students so that they can become effective members of society to bring about change. HE teachers therefore focus on challenging students' assumptions and views of the world.</p> <p>Curriculum change is constrained by various external and internal factors, often related to institutional culture.</p> <p>Curriculum change should be achieved most effectively through the dynamic interaction of a "community of scholars" that may include HE teachers, students and other interested parties.</p> <p>The promise of a lifewide curriculum is applicable in this context.</p>	<p>The conception of teaching focuses on the students and on promoting conceptual change through a process of facilitating students' construction of knowledge and meaning.</p> <p>HE teacher engages students in authentic dialogue to construct meaning – it becomes a shared responsibility.</p> <p>The learning experience does not only bring about conceptual change on the part of the students, but also impacts on the HE teacher and students in person – a "reconstructing" of themselves.</p>	<p>The role of the HE teacher is to "make" or "create" the curriculum rather than adapting the curriculum to suit the needs of students.</p> <p>HE teacher recognises that knowledge and meaning are outcomes constructed by students in an active dialogue within the socio-cultural dynamics of the programme.</p> <p>HE teacher also recognises that teaching is not merely about knowledge, but the development of a critical being.</p>	<p>Students are actively and fully engaged in their learning that goes beyond mere acquisition of knowledge and skills, moving towards bringing about conceptual change and promoting the development of a critical being.</p> <p>Students' engagement in learning is an intentional act that reaches beyond their engagement with the HE curriculum, and meant to impact on their career and personal development.</p>	<p>Students have a voice in the curriculum through their participation in the "community of scholars" in the field of study.</p> <p>The dynamic and interactive nature of the curriculum and the dialogic relationship in terms of teaching empower students not only in terms of their higher education studies, but for life.</p> <p>Students develop an appreciation of the challenges of the modern world and the needs to develop capabilities for, and commitment to lifewide and lifelong learning.</p>

Sources: Snyder, Bolin and Zumwalt (1992); Fraser and Bosanquet (2006:279-282); Light, Cox and Calkins, (2009), Jackson (2011a).

2.8.2. A conceptual framework for teaching and learning of graduate attributes in higher education

As indicated in **Paragraph 2.8.1.**, academics have qualitatively different conceptions and orientations of curriculum and consequently of attaining graduate attributes in the curriculum. Barrie (2007:440) indicated that based on a phenomenographic analysis of interview data obtained at an Australian university, these conceptions of academics vary in terms of the nature of the outcomes, ranging from atomistic low-level technical and personal skills to holistic interwoven abilities and aptitudes for learning. The conceptions also vary in terms of the relationship between these graduate attribute outcomes and discipline knowledge, as well as in terms of the additive or transformative potential of such attributes.

Barrie (2006b:225-231; 2007:440) describes **four increasingly complex, qualitatively distinct understandings or conceptions of “generic” graduate attributes** in university learning outcomes as follows:

- **Precursor conception**

Generic graduate attributes are necessary precursor skills and abilities that are separate from discipline knowledge and learning; however, they are vital precursors to such (Mode 1 forms of knowledge) learning. Most students are expected to have these undifferentiated foundation skills (like English language proficiency or basic numeracy) on entry. Any consideration of such skills at a university level would be regarded as remedial only. As such, these attributes are seen as largely irrelevant in the context of the courses taught by the academics in question. This additional remedial curriculum in the form of an additional foundation skills course, a series of remedial workshops, or a similar form of support should be provided by other non-disciplinary teachers.

- **Complement conception**

Academics view generic graduate attributes as useful additional skills that “complement or round off graduates’ discipline knowledge” (Barrie, 2006b:226). Graduate attributes are viewed as functional, atomistic personal skills that, while constituting an important addition to disciplinary learning, are quite distinct from other university learning outcomes. Graduate attributes should be addressed by including an additional unit (or units) of study in a course, an additional series of lectures or workshops within an existing unit, or a particular learning task to assist with the development of these attributes. In line with this conception, graduate attributes do not interact with discipline knowledge and the attributes are essentially generic, although different attributes might be more or less relevant in the context of different

disciplines. The following statement in Barrie (2006b:227) describes this conception well:

Generic attributes are the sorts of all-round skills that any graduate should have ... they are useful additions to the disciplinary knowledge and expertise.

- **Translation conception**

This conception supports the view that generic graduate attributes are important university learning outcomes that allow students to make use of and apply disciplinary knowledge (Mode 2 forms of knowledge). Based on this view, graduate attributes are positioned as clusters of personal attributes, cognitive abilities and skills of application. While generic graduate attributes are still regarded as separate to discipline knowledge, graduate attributes are no longer seen as independent of this knowledge. Instead, graduate attributes interact with, and shape discipline knowledge – “there is a mutual relationship between the thematised generic attributes and the other disciplinary learning outcomes in the field of awareness” (Barrie, 2006b:227). According to Barrie (2006b:228) this “theme-field relationship” can be characterised as interactive or mutual allowing application of abstract knowledge. Rather than being generic, graduate attributes are “tailored” or specialised and differentiated forms of underlying generic abilities which are developed to meet the needs of a specific discipline or field of knowledge. Generic graduate attributes are perceived to be an important outcome of university learning – on a par with the discipline content knowledge. “Rather than being useful skills that sit alongside and independent of disciplinary knowledge, in this conception graduate attributes are connected to, and interact with, disciplinary knowledge” (Barrie, 2006b:229). Hence, according to this conception graduate attributes are viewed to be transformative in nature, rather than additive.

- **Enabling conception**

This conception supports the heart of all scholarly learning with the potential that the abilities and aptitudes will transform the knowledge they are part of, supporting the creation of new knowledge and transforming the individual (Barrie, 2004:440). Graduate attributes are not seen as parallel learning outcomes to disciplinary knowledge components in the curriculum, but as capabilities that site at the very heart of discipline knowledge and learning – “they infuse and are part of all learning” (Barrie, 2006b:229). Rather than viewed as clusters of attributes, these are understood as interwoven networks of these clusters. These interwoven attitudes and capabilities give graduates a particular perspective or world view - a way of relating to the world, or to knowledge, or to themselves (Mode 3 knowledge as

defined by Barnett (2004:251)). Based on this conception, generic graduate attributes are the core or “skeleton” to provide form and function to the disciplinary knowledge and the learning of that knowledge. Generic graduate attributes are embedded in the curriculum to form a “reusable framework that enables students/graduates to acquire and shape new knowledge as required – even in the context of other disciplines” (Barrie, 2006b:230). Graduate attributes, as viewed by academics holding this conception are part of a holistic world view and aptitude for learning that transcend the disciplinary contexts in which they had originally been acquired. Although the referential aspect of this concept is again transformative, this transformative nature extends beyond merely translating, applying or adapting abstract or theoretical knowledge learnt at university to solve real world problems (Barrie, 2006b:230). Generic graduate attributes are understood to be capabilities that encompass the reshaping of existing knowledge and the construction of new knowledge in contexts removed from the original discipline that the student studied, allowing the graduate to use these as “the keys to inquiry and learning in many aspects of life, not just formal study” (Barrie, 2006b:230).

Table 2.12 provides a summary of the Conceptions of Generic Attributes (COGA) model developed by Barrie (2006b:224; 2007:441). It is, however, important to note that the categories of description vary on several dimensions, such as: the type of skills (atomistic personal skills to integrated and holistic capabilities), the relationship to disciplinary knowledge, and the way this relationship is understood (additive or transformative dimension) as described by Barrie (2006b:232). Barrie (2006:234) observes that an analysis of the data obtained from the study indicates that variations in conceptions of academics from different disciplines in terms of their conceptions cannot be accounted to the discipline, but is likely to be a result of the “interplay between such disciplinary conceptions and conceptions of graduate attributes”.

At this point it is important to note that the nature of the relationship between generic graduate attributes and discipline knowledge, as well as the additive or transformative potential of these attributes, impacts on the curriculum in terms of:

- **What?:** The degree of specialisation of graduate attributes in discipline context – considering progression between level – e.g. Basic generic skills at first-year level to advanced skills at fourth-year level
- **Where?:** The place in the university curriculum – a stand-alone module added to the curriculum (additive) or infused in the curriculum (transformative)

- **How?:** Teaching-learning and assessment practices to support the development of graduate attributes – taking into account that these would differ in terms of the degree of specialisation of graduate attributes in discipline context, as well as the degree of integration.

Table 2.12: Academics’ conceptions of generic graduate attributes (GGAs) as outcomes

		Referential (what is meant)		
Structural (internal and external horizon)			Additive GGAs are discrete from other university learning outcomes	Transformative GGAs interact with other university learning outcomes
	Irrelevant	No aspect of GGAs in the foreground, they are ignored. The relationship to other learning outcomes serves as a backdrop.	Level 1: Precursor conception Skills, but irrelevant as they are a prerequisite for university entry.	
	Unrelated	In the foreground are undifferentiated, functional, atomistic personal skills that are not related to discipline knowledge.	Level 2: Complement conception Useful skills that complement or round out disciplinary learning.	
	Application	In the foreground are specialised clustered abilities and skills of application. These abilities are relevant to discipline knowledge.		Level 3: Translation conception These are the abilities that let students translate, make use of or apply disciplinary knowledge in the world.
	Integral substrate	In the foreground are interwoven abilities and aptitudes for learning. These aptitudes shape disciplinary and other knowledge.		Level 4: Enabling conception They are enabling abilities that infuse university learning and knowledge.

Source: Barrie (2006b:224)

Based on the study conducted by Barrie (2006a:154) at an Australian university, he indicates that related to these four conceptions of generic graduate attributes there are six different understandings of the process of teaching and learning such generic graduate attributes in

higher education. The six categories related to the teaching and learning of graduate attributes, based on academics' conceptions in Barrie's research (2007:445-449) are:

- **Remedial: Generic graduate attributes are not part of usual university teaching**
 Some academics express an understanding of the development of generic attributes as not being part of university teaching. The development of such attributes is not understood to be within the purview of mainstream university education, or the responsibility of university teachers. Rather, the teaching of such attributes is considered to be the responsibility of previous (education or otherwise) experiences, and only relevant in a remedial context at the university level.
- **Associated: Generic graduate attributes are taught as a discrete subset of the teaching in a university course**
 Another understanding expressed is that the development of generic graduate attributes involves the teaching of these skills and attributes as an isolated subset of the teaching of the discipline or course. This "generic attributes" curriculum is included as an addition to the usual curriculum. Unlike the previous conception, the teaching of the said attributes is seen as relevant, and ideally included in the curriculum for all students. However, the teaching of the skills in question remains secondary to, and less important than disciplinary teaching.
- **Teaching content: Generic graduate attributes are taught in the context of the disciplinary knowledge**
 Some academics indicate that generic graduate attributes are taught in the context of disciplinary knowledge. Conceptions in this category involve teaching by discipline teachers or non-discipline teachers in collaboration with discipline experts. The teaching of the generic attributes is integrated with the teaching of discipline content. The focus remains on teaching rather than learning. As in the previous conceptions, generic attributes are understood as something that is taught rather than something that is learned.
- **Teaching process: Generic graduate attributes are taught concomitantly with the disciplinary knowledge in any particular course**
 Some academics expressed an understanding of the development of generic attributes as learning taking place while the disciplinary knowledge is being taught. The process of teaching disciplinary knowledge provides the opportunities for students to be taught generic attributes. They are not necessarily taught as part of the content, as in the preceding conception; however, the way the content is taught facilitates the teaching of the relevant attributes. The process of teaching forms the focus of this conception. As in the previous structures of awareness, the focus is still on the teacher. However, rather than a focus on what is taught, the focus is on the

way the curriculum is taught – a focus on the teaching process of the curriculum rather than on the taught curriculum content. Implicit in this conception is the idea that generic attributes are developed by students through the learning opportunities provided by particular teaching processes. This is the first structure of awareness that implicitly includes an active learner, although the focus remains on the teacher.

- **Engagement: Generic graduate attributes are learnt through the way students engage with learning experiences in a particular course.**

In many ways this category is similar to the preceding category; the focus, however, is no longer on the teacher or teaching. In this conception the development of generic attributes is understood as (being about) something that is learnt, not something that is taught, with the learner rather than the teacher being in the foreground. This shift in focus from teaching to learning is responsible for a fundamental difference between this category of description and the previous four, and marks a distinction between teacher-focused and learner-focused conceptions (Prosser & Trigwell, 1999). In this structure of awareness the focus is on the way the student learns, rather than on the way the teacher teaches.

- **Participatory: Generic graduate attributes are learnt through the way students participate in the experiences of university life**

As with the preceding category, the learner rather than the teacher is the focus of this conception, and students' perceptions and approaches to learning are perceived to influence the development of generic attributes significantly. As in the previous conception, what is foregrounded is the way the learner engages in learning. However, in this structure of awareness the learner's engagement in learning is not restricted to the way the learner engages in the formal teaching and learning experiences of the course. Instead, what is foregrounded in this conception is the way the student participates in the broader experience of university life.

Barrie's (2007:449) research shows that the relationship between the six categories of descriptions listed above is logical and hierarchical, and defined by the variation in the structural and referential aspects of each category (see **Table 2.12**).

In conclusion, Barrie (2006a:155) indicates that this phenomenographic perspective on generic graduate attributes provides a possible theoretical or conceptual perspective on how higher education institutions could base their policy frameworks and implementation strategies. Barrie (2006a:156) recommends a research-based approach to the development of graduate attributes instead of a mere listing of "fashionable" attributes. Working from the perspective that graduate attributes are interwoven networks of clusters of skills and abilities that sit at the heart of discipline knowledge and human capability, Barrie (2006:157)

recommends a tiered approach to the development of a holistic policy framework and implementation strategy. This matter will be briefly addressed in the final chapter of this dissertation.

2.9. Conclusion

This chapter centres around the three domains of higher learning, namely that of knowing, doing and being. At the same time it shows the interrelatedness of the four meta-concepts described in literature over a period of approximately two decades, referring to the dominant impact of the human capital theory and economic growth which emphasised employability as a key focus of graduate attributes in higher education. This chapter also discussed the terminology associated with literature on graduate attributes and how terms such as generic, core, key or transferable, and competencies, skills, attributes and capabilities are used interchangeably. The researcher prefers the term “graduate capabilities” since it reflects the complexity associated with different forms of knowledge, skills, attributes and competencies pertaining to a changing world of complex practices. The term also encompasses the ability to perform skilful practices and actions associated with professional expertise and capacity. “Graduate capabilities” also suggest a lifewide and lifelong learning view that allow graduates to embrace their own potential, qualities and abilities as they make their way through their higher education studies, career and life. It is also important to note that the researcher supports the view of Jones (2009; 2012) who indicates that graduate attributes are context-dependent and are in fact shaped by the disciplinary epistemology in which they are conceptualised and taught. The researcher hopes to explore these complexities of nature and context of graduate capabilities in more detail in the phenomenographic study that follows.

In conclusion, the invisible and elusive character of curriculum creates difficulties for academics who wish to embrace the challenge of preparing students for a changing world by embedding graduate capabilities into their teaching practice. This is compounded by the fact that, based on several research projects over the past decade, it is evident that academics have different conceptions and orientations of curriculum.

The next chapter will outline the research design and methods of inquiry of a phenomenographic study to be undertaken to illuminate academics’ conceptions of and orientations to graduate capabilities at the Cape University of Technology in South Africa, thereby adding to the current body of knowledge on this topic.

Chapter 3

Research design and methodology

*Phenomenography is not a method in itself,
although there are methodical elements associated with it,
nor is it a theory of experience,
although there are theoretical elements to be derived from it.*

Phenomenography is rather a way of – an approach to – identifying, formulating, and tackling certain sorts of research questions, a specialisation that is particularly aimed at questions of relevance to learning and understanding in an educational setting.

Marton and Booth (1997:111)

3.1. Introduction

Mason (2002) argues that qualitative research can be a highly rewarding activity since it allows the researcher to engage with things that matter, in ways that matter. She continues by stating that through qualitative research “we can explore a wide array of dimensions of the social world, including the texture and weave of everyday life, the understandings, experiences and imaginings of our research participants, the ways that social processes, institutions, discourses or relationships work, and the significance of the meanings they generate” (Mason, 2002:1). The objective of qualitative research is to determine the **what**, **how** and **why** of a particular case or phenomenon and to focus on the qualities, the characteristics or the properties of a phenomenon for better understanding and explanation (Henning, 2004:5). With regard to embarking on a qualitative research project, Crotty (1998:2-3) suggests that researchers should consider four key questions which define the different conceptual levels of the research process:

- **What methods do we propose to use?** Methods are techniques or procedures used to gather and analyse data related to the research question(s).
- **What methodology governs our choice and use of methods?** Methodology is the strategy, plan of action, process or design that supports the choice and use of particular methods. It also links the choice and use of methods to the desired outcomes.
- **What ontological perspective lies behind the methodology in question?** This relates to the philosophical underpinning or stance that informs the methodology and thus provides a context for the process and grounding its logic and criteria.
- **What epistemology informs this theoretical perspective?** Epistemology is the theory of knowledge embedded in the theoretical perspective, and thereby in the methodology. It focuses on the relationship between the inquirer and the known.

Dyson and Brown (2006: 3) add another conceptual level to the said four defined by Crotty (1998), namely, methodological criteria consisting of questions relating to internal and external validity and reliability. These different conceptual levels are interconnected, generic activities that define the research process. According to Denzin and Lincoln (2008:28), the researcher approaches the world with a set of ideas, a framework (ontology) that specifies a set of questions (epistemology) that is then examined in specific ways (methodology) using specific research instruments (methods).

3.2. Purpose and aims of this investigation

As indicated in **Chapter 2** of this dissertation, people generally talk about graduate attributes as if they are all of a kind, yet as indicated by Hager (2006:18), graduate attributes include “a range of diverse and fundamentally different kinds of entities such as skill components, attitudes, values and dispositions”. Bowden *et al.* (2000) define graduate attributes as “the qualities, skills and understandings a university community agrees its students should develop during their time with the institution. These attributes include, but go beyond, the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents for social good in an unknown future”.

This view is supported by Yorke (2006:13) who suggests that “employability goes well beyond the simplistic notion of key skills, and is evidenced in the application of a mix of personal qualities and beliefs, understandings, skilful practices and the ability to reflect productively on experience” in situations of complexity and ambiguity. Jones (2009:85) argues that generic skills or attributes are context-dependent and are in fact “shaped by the disciplinary epistemology in which they are conceptualised and taught”.

For the purpose of this phenomenographic study the researcher used the definition of graduate attributes of the Council on Higher Education (2013). The Council on Higher Education (2013:19) states that although outcomes and graduate attributes should not be construed as mutually exclusive, graduate attributes are geared to outcomes such as knowledge, skills and competences, “but also encompass values, attitudes, critical thinking, ethical and professional behaviour, and the capacity of a graduate to take what has been learnt beyond the site of learning”. The CHE (2013:19) proposes to incorporate the concept “graduate attributes” in preference to the more restricted (and limiting) term “outcomes”. It acknowledges that articulating “graduate attributes in *a meaningful way* [italics in original text] will not be easy, especially in cases where such attributes are reflected more in attitudes

than in the concrete demonstration of specific knowledge or skills". However, the emphasis should be on "what a graduate is able to do or show" (CHE, 2013:20). This definition of graduate attributes relates directly to the three domains of higher learning, i.e. "knowing", "doing" and "being", which forms the "building blocks" of an engaged curriculum as defined by Barnett and Coate (2005:65). Graduate attributes are intertwined with these three intersecting curriculum elements. Barnett and Coate (2005) argue that learning for an unknown future calls for:

- The student's engagement with knowledge, but more specifically his or her **knowing** which requires that attention should be given to various forms of knowledge and their purpose on the higher education curricula.
- **Action and practice** of varying kinds which requires the student to engage with an identity and to act out the role of that identity. Closely aligned to practice is also the notion of skill.
- Certain human capacities and dispositions, as well as self-awareness and self-confidence that speak to the student's inner self, his or her **being or becoming**.

This engaged view of graduate attributes is supported by Dall'Alba and Barnacle (2007:689):

We have argued it is not enough for learners merely to understand new concepts or acquire new skills: this does not produce skilful practitioners. Instead, they are to transform as people, to become architects, psychologists, biologists, etc., who enact ways of being in the world appropriate to the practice in question that are also responsive to changing practice contexts. In other words, we are calling for educational approaches that engage the whole person: what they know, how they act, and who they are.

Since the focus of this study was on the development of graduate attributes as it manifests itself in Applied Design programmes at a University of Technology, the interconnected spaces of knowing, acting and becoming or being design professionals are embedded within academic staff members' embodied understanding of curriculum and teaching practice. The main aim of this phenomenographic study was to explore the conceptions and orientations of a group of academic staff members in Applied Design programmes at a South African University of Technology regarding graduate attributes in terms of knowing, doing and being (Barnett & Coate, 2005) with a view to improving and enhancing current curricula and practice.

This study focused on the following research question: What are the current conceptions and orientations of academic staff regarding the development of graduate attribute outcomes

in curricula of undergraduate occupational and professional Applied Design programmes at the Cape Peninsula University of Technology (CPUT)?

The following subsidiary questions were considered:

- What are the **conceptions** of academic staff members at CPUT in terms of graduate attribute outcomes?
- What are the **orientations** of academic staff member at CPUT towards the development of graduate attribute outcomes through their teaching practice?
- What is the **interaction between the conceptions and orientations** of academic staff members towards the development of graduate attribute outcomes in curricula of occupational and professional Applied Design programmes at CPUT?

The purpose of this study was to:

- Explore the current conceptions of a group of academic staff members teaching a number of Applied Design programmes at the Cape Peninsula University of Technology in terms of graduate attribute outcomes.
- Investigate the current orientations of academic staff members in terms of the development of graduate attribute outcomes in undergraduate occupational and professional Applied Design programmes at the Cape Peninsula University of Technology.
- Determine the interaction between the conceptions and orientations of academic staff members at CPUT towards the development of graduate attribute outcomes in undergraduate occupational and professional Applied Design programmes.
- Based on recent research and the findings of this study, consider implications in terms of an appropriate policy framework and implementation strategy development for CPUT.

The following Applied Design programmes currently offered by the Faculty of Informatics and Design at the Cape Peninsula University of Technology were identified for this study:

- Fashion (sometimes referred to as Fashion Design)
- Graphic Design
- Jewellery Design and Manufacture
- Surface Design (sometimes referred to as Textile Design)
- Three Dimensional Design (commonly known as Industrial Design)

In this chapter, the ontological, epistemological and methodological aspects will be addressed in more detail from a phenomenographic perspective. This chapter consists of two interrelated parts, which will be discussed alongside each other namely:

- Firstly, related to the key questions to be considered by a qualitative researcher as listed above, the different conceptual levels of the research process will be described in more detail, using a phenomenographic approach.
- Secondly, the focus is on how these aspects relate to this particular phenomenographic study.

3.3. Phenomenography as research approach

Generally speaking, phenomenography is an approach to identifying, formulating and addressing particular types of research questions within the constructivist-interpretivist paradigm that primarily investigates the qualitatively different ways in which people experience, conceptualise, perceive and understand various aspects of, and phenomena in, the world around them (Marton, 1986:31 in Bowden, 2000:2). Phenomenography as a qualitative research approach emerged in the 1970s. It emanated from research led by Ference Marton to study variation in student learning outcomes (Marton & Booth, 1997:14) and represented “a reaction against, and an alternative to, the then dominant tradition of positivistic, behaviouristic and quantitative research” (Svensson, 1997:171).

Over the years, phenomenography has been used to:

- Research the experience of student learning (Cope, 2004; Drew, Bailey & Shreeve, 2002; Hallett, 2010; Lucas, 2001; Marton & Booth, 1997; Micari, Light, Calkins & Streitwieser, 2007);
- The experience of teaching (Åkerlind, 2008; Booth, 1997; Roberts, 2003; Trigwell, Prosser & Ginns, 2005);
- The different ways of experiencing the content learned (Reed, 2006; Prosser & Trigwell, 2006);
- The different ways of experiencing graduate attributes (Barrie, 2006b);
- The design of programmes (Prosser & Trigwell, 1997; Fraser & Bosanquet, 2006);
- Describing aspects of the life and work of professionals such as nurses (Barnard & Gerber, 1999; Degen, 2010; Rosengren, Athlin & Segensten, 2007), information technology practitioners (Bruce, Pham & Stoodley, 2004), engineers (Sandberg, 2000; Daly, Mann & Adams, 2008), anaesthesiologists (Larsson & Holmström, 2007) accounting practitioners (Sin, Reid & Dahlgren, 2011) and designers (Adams, Daly, Mann & Dall’Alba, 2011).

Marton and Booth (1997:111) argue that phenomenography is not a research method in itself, and although there are methodological elements, it is not a theory of experience, although there are theoretical elements. In their opinion, phenomenography is “rather a way of – an approach to – identifying, formulating and tackling certain sorts of research questions”, which often relate to issues of learning and understanding an educational setting. Phenomenography is not the same as phenomenology. Although both these research methodologies share the term “phenomenon”, which means to show, appear, manifest or to bring to light (or shine); phenomenology with the suffix *-logos*, is a philosophical method, with the philosopher engaged in investigating his/her own experience. Phenomenography with the suffix *-graph*, adopts an empirical orientation with the focus on describing the different ways a group of people understand a phenomenon (Larsson & Holmström, 2007:55). Phenomenography is thus concerned about the description of things such as “conceptions”, “ways of understanding”, “ways of comprehending”, “conceptualisations” and “ways of experiencing” as they appear to us (Marton & Booth, 1997:114). The word “experience” is defined here as an individual sensing discrete phenomena in a particular situation (Micari *et al.*, 2007:462). Consequently the way of experiencing a particular situation is, according to Marton and Booth (1997:112), “a way of discerning something from, and relating it to, a context”. Phenomenography is therefore in essence the study of how people experience, understand or conceive of a phenomenon in the world around us (Larsson & Holmström, 2007:56), while phenomenology is “to uncover the essence of the phenomenon, its inner core, what the “thing” is, and without which it could not be what it is” (Strandmark & Hedelin, 2002:79 in Larsson & Holmström, 2007:59). As far as the aims are concerned, Marton and Booth (197:116) agree that phenomenology and phenomenography share the object of research as both aim to reveal the nature of human experience and awareness, yet “they differ in the ways they go about that enterprise”. Phenomenology is based on “a single theory of experience by using a particular method ... a philosophical method” to investigate researchers’ own experience of the object of research, while phenomenography adopts “an empirical orientation: they study the experience of others” (Marton & Booth, 1997:116). In phenomenology the distinction between “the prereflective experience and conceptual thought” is important, while phenomenography does not make this distinction as “the structure and meaning of a phenomenon as experienced can be found in both prereflective experience and conceptual thought” (Marton & Booth, 1997:117). Phenomenology and phenomenography also differ in terms of the purpose of the research, as described by Marton and Booth (1997:117), with phenomenology focusing on the capturing the “richness of the experiences”, whereas in phenomenography “the sparseness of the category of description or the logical hierarchy of the outcome space” is the key focus.

3.4. Historical roots of phenomenography

The word *phenomenography* has its etymological roots in Greek *phainomenon* (phenomenon, appearance) and *graphein* (description) and, according to Hasselgren and Beach (1997:192), the term first appeared in research texts such as articles about phenomenology and existential analysis by Ulrich Sonneman (1954) and later by Ference Marton (Marton, 1981:180).

Phenomenography developed from the work undertaken by Nordic educational researchers such as Ference Marton, Roger Säljö, Lars-Öwe Dahlgren and Lennart Svensson in the mid-1970s, and has emerged from strong empirical roots rather than from a theoretical or philosophical basis. These researchers had a common interest in investigating aspects of student learning and began to question the dominant positivist paradigm of the time emphasizing measurement and quantification (Dall’Alba, 1996:7,10). Marton and his colleagues from the University of Gothenburg in Sweden focused on exploring the relationship between “what” rather than “how much” the students learned. This led to investigations of the relationship between the learners’ ways of experiencing the learning task and the learning situation or their approaches to learning (Marton, 2000:103). The individual student was no longer central to their research efforts, but the students they investigated formed a collective supplier of fragments for how learning content was understood and situations which involved learning were perceived by learners (Dall’Alba, 1996:7; Reed, 2006:1). Marton (2000:103) confirms that the act of learning (the “what” of the learning task and learning situation) and the outcome (“how” the learning task and learning situation was experienced by the learners) were two intertwined facets of learning. Dall’Alba (1996:7) indicates that the research efforts of Marton and his colleagues led to the distinction between holistic and atomistic, and between deep and surface approaches to learning tasks.

Marton (1978, 1986) in Richardson (1999:57) admits that the methods he adopted in his earlier phenomenographic research projects lacked a conceptual basis. He provides a more convincing and principled rationale for this research approach by arguing that the conventional research on student learning adopted a “first-order” or “from the outside” perspective that described the learner and the learner’s world in broadly the same terms. Contrary to that, his approach is a “second-order” or “from-the-inside” perspective attempting to describe the world as the learner experienced it. Richardson (1999:57) indicates that Marton linked his idea to Kant’s distinction between a thing in itself (or noumenon) and a thing as it appeared (or phenomenon). According to Marton in Richardson (1999:57),

traditional research adopted an observational or “noumenal” approach, while Marton and his colleagues adopted an experiential or “phenomenal” approach.

Until the mid-1990s, relatively few analyses of this research approach were available. The seminal paper of Marton (1981) on phenomenography in *Instructional Science* and other publications (e.g. Johansson, Marton & Svensson, 1985) which laid much of the early foundations for the ontological and epistemological basis of phenomenography, were available. In this early publication of Marton (1981) on phenomenography the fundamental distinction is made between two perspectives, namely the first-order perspective referred to by Marton (1981:177) as describing various aspects of the world and the second-order perspective aimed at describing people’s experience of various aspects of the world.

As phenomenography as a research approach gained interest among researchers, it became evident that there were considerable variations in the methods used by different phenomenographic researchers, and even by the same researcher in several investigations. This led to the Warburton Symposium in 1991 and the publication of a monograph: *Phenomenography*, edited by John Bowden and Eleanor Walsh and published in 2000. The papers presented in this monograph are contributions from experienced phenomenographers of the late 1990s who critically interrogate issues of phenomenographic research. The *Nordisk Pedagogik* (Journal of Nordic Educational Research) published a series of articles between 1993-1995 under the theme: “Reflections on phenomenography” which contributed to the ongoing debate around methodological issues. These articles were subsequently republished in 1996 by Gloria Dall’Alba and Biörn Hasselgren, titled: *Reflections on phenomenography: Towards a Methodology?* In 1997, Ference Marton and Shirley Booth published one of the most frequently cited publications on phenomenography, namely: *Learning and Awareness*. This publication is significant in as far as it presents phenomenography as a structure of awareness or consciousness with the main purpose of mapping the qualitatively different ways in which people experience, conceptualise, perceive, and understand various aspects of, and phenomena in, the world around them.

In several countries such as Australia, Canada, China, England, Finland, Hong Kong, Scotland, South Africa, Sweden and the United States of America phenomenographic research efforts have been carried out since the 1980s. The emergence of phenomenography as a research approach coincides with a greater emphasis on qualitative research as indicated by Denzin and Lincoln in their publication: *Handbook of Qualitative Research* (1994:2). These authors refer to qualitative research as “multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. This means that

qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of meanings people bring to them” (Dall’Alba, 1996:8). Le Compte and Preissle (1992) in Dall’Alba (1996:11) comment as follows on the increased attention given to qualitative research by stating:

Ethnographic and qualitative research in education has undergone the same theoretical and methodological evolution from functionalism to interpretive and from positivistic to more phenomenological and constructed forms of inquiry as has occurred in the natural and social sciences more generally. Conceptually, this meant a shift in focus from structure to agency.

3.5. The aims of phenomenographic research

According to Åkerlind (2005:322), the object of study in phenomenographic research included, based on the earlier work of Marton (1981), a focus on variation in human meaning, understanding and conceptions, while more recently, awareness or ways of experiencing a particular phenomenon, based on the work of Marton and Booth (1997), have been included. Marton (1994b:7) describes the object of phenomenographic research as follows:

The object of phenomenographic research is the way (or the different ways) in which we experience – or are aware of – the world around us. At the same time phenomenography does not aim at capturing the full richness of experience. Quite the contrary: phenomenography aims at a very specific level of description, corresponding to a level of experience believed to be critical as far as our capabilities of experiencing certain phenomena in certain ways are concerned. This level has to do with what different phenomena are seen as, what they appear to be, what their potentially differing means are, how they are delimited from – and related to – their context, as well as other phenomena, how their parts are delimited and related to each other, as well as to the whole; what is figural and what is ground, what is focused and what is not; from what point of view the phenomenon is seen, and so on. Although experience is dynamic, steadily in flux, this level refers to the anatomy of the experience, the anatomy of awareness, through the two dialectically intertwined aspects: the structural and referential.

The research outcomes of a phenomenographic study are represented analytically as a number of qualitatively different meanings or ways of experiencing the phenomenon, but these also include the structural relationships linking these different ways of experiencing the phenomenon (Åkerlind, 2005:322). The focus of the research process is therefore on establishing the differences and similarities in the structure of awareness and the corresponding meaning of the phenomenon or situation (Marton, 1994b:7). The assumption that different categories of description or ways of experiencing a phenomenon are logically related to one another, is a core premise of phenomenography (Marton & Booth, 1997), although according to Åkerlind (2005:322), this is often misunderstood. The collective, rather than the individual experience is another aspect that is often misunderstood. Phenomenographic research aims to explore the range of meanings within a sample group, as a group, not the range of meanings for each individual within the group (Åkerlind,

2005:322). One of the strengths of phenomenography is that it provides a way of looking at collective human experience of phenomena holistically although such phenomena may be perceived differently by different people and under different circumstances.

In summary, phenomenography as a research approach aims to map “the qualitatively different ways in which people experience, conceptualise, perceive, and understand various aspects of, and various phenomena in, the world around them” (Marton, 1986:31 in Yates, Partridge & Bruce, 2012:97). This is underpinned by the notion that people collectively experience and/or understand a phenomenon in qualitatively different, yet interrelated ways. In phenomenographic research, it is assumed that there is a limited number of ways of experiencing reality and the description of variations in this respect is according to Säljö (1997:174) the main aim of phenomenography.

3.6. The nature of phenomenographic research

As indicated earlier in this chapter, a phenomenographic study focuses on a phenomenon or situation people encounter by looking at a limited number of qualitatively different and logically interrelated ways in which the phenomenon or the situation is experienced or understood. Marton (1992:253) in Hasselgren and Beach (1997:192) describes “phenomenography as a research method designed to describe the qualitatively different ways in which a phenomenon is experienced, conceptualised, or understood, based on an analysis of accounts of experiences as they are formed in descriptions”.

Trigwell (2006:369-370) provides an overview of how phenomenography is distinguished from other research approaches (see **Figure 3.1**) in terms of the following five key aspects:

- Firstly, the phenomenographic research approach adopts a **non-dualist or relational** qualitative, second-order perspective. The aim is to describe the key aspects of the variation of the collective experience of a phenomenon rather than the richness of the individual experiences (Trigwell, 2006:368). This non-dualist nature of phenomenography regards the individual person or subject not as a separate entity from the phenomenon or object, but relational. Prosser and Trigwell (1997:42) describe the non-dualistic nature of phenomenography as follows:

From a phenomenographic perspective there is an internal relationship between the individual and the world. The individual and the world is not constituted independently of one another. Individuals and the world are not internally related through the individual's awareness of the world. Mind does not exist independently of the world around it. The world is an experienced world.

Marton (2000:105) describes the phenomenographic approach as one that does not recognise a dividing line between the inner and the outer world or between subject and object by stating the following:

There is only one world; a really existing world, which is experienced and understood in different ways by human beings. It is simultaneously objective and subjective ... Phenomenography sees “experience” (“conception”, “understanding”, “perception”, “apprehension”, etc.) as a relation between the subject and object, as “something seen in some way by someone”. Although the relation is neutral to the distinction between object and subject, someone’s way of experiencing something can be seen either in relation to others’ ways of experiencing the same thing or to the same individual’s way of experiencing other things.

Marton (2000:105) states that the notion that “an object of experience is not independent of the way in which it is experienced, does not imply that the object is identical with the way in which it is experienced.” He continues by indicating that a more reasonable idea would be to see the object as “a complex of the different ways in which it can be experienced” and that these different ways are logically related to each other and hence in this sense “they are experiences of the same object” (Marton, 2000:105). Yates *et al.* (2012:98) proclaim that it is these inseparable subject-object relations that phenomenography represents as experiences, which, when combined, represents the phenomenon as a whole or as indicated by Marton (2000:105):

The logically structured complex of the different ways of experiencing an object is what has been called the outcome space of the object ... “Outcome space” thus turns out to be a synonym for “phenomenon”: the thing as it appears to us, which contrasts with the Kantian “noumenon”: “the thing as such”.

- Secondly, phenomenography is regarded as a **qualitative approach** rather than a quantitative approach. It is based mostly on the qualitative analysis of transcripts of interviews or other forms of qualitative data analysis.
- Thirdly, phenomenography according to Marton (1981:177) and Trigwell (2006:370) adopts a **second-order** rather than a first-order approach. In a first order approach, the researcher describes or defines the phenomenon as he/she perceives it, but in a second-order approach the experiences of the phenomenon as described by the participants/subjects form the basis of the researcher’s description. Emphasis is also placed on the variation in the collective experiences of the participants/subjects and not on the richness of a participant’s or subject’s experience.
- Fourthly, the focus of the data analysis is on the variation in the experience of a group of people. It therefore places emphasis on those key aspects that show differences in the ways a phenomenon is experienced. Since the focus is on **differences** of

ways in which the experiences vary, those experiences that are common across the group of subjects/participants may not be included.

- Finally, a core premise of phenomenography is that a limited number of internally related, hierarchical categories of description of ways of experiencing a phenomenon are logically related to one another (Åkerlind, 2005; Marton & Booth, 1997; Trigwell, 2006). When analysing the data obtained from a phenomenographic study, the **logical internal relations** between the different ways of experiencing a phenomenon are identified, resulting in **categories of description** that constitute the “outcome space”. Three criteria, as defined by Marton and Booth (1997:125-126) and Trigwell (2006:371) apply when assessing the quality of the categories of description in the outcome space, namely:
 - The first criterion indicates that the individual categories in the outcome space reveal something distinctive about a way of understanding or experiencing the phenomenon.
 - The second criterion indicates that the categories are logically related, frequently as a hierarchy of structurally inclusive relationships.
 - The third criterion indicates that the outcomes are parsimonious which is to say that as few categories should be explicated as is feasible and reasonable, for capturing the critical variation in the data.

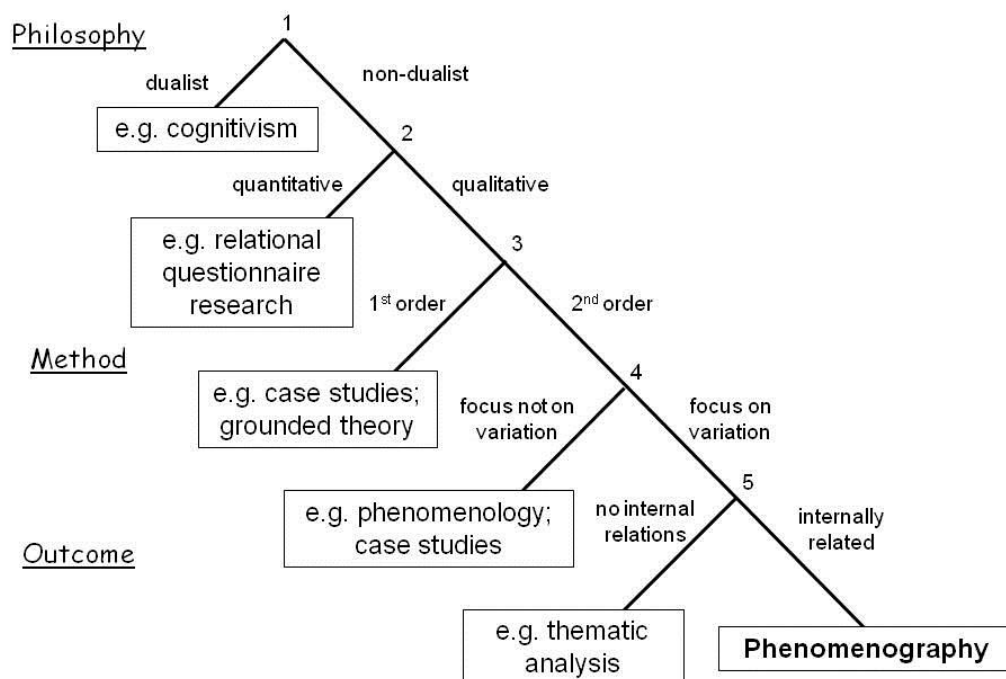


Figure 3.1: Defining phenomenography (Trigwell, 2006:369)

3.7. Criticisms of phenomenography

Bowden (2000: 1) indicates that critics of phenomenographic research allude to its perceived lack of validity, its researcher bias, its denial of the voice of the participant through categorisation and the lack of predictive power. Based on criticisms and past problems of phenomenographic research efforts, Entwistle (1997:132-133) in Degen (2010:36) cautions researchers using phenomenography as a research method to:

- Pose questions to participants/subjects in such a manner that it allows the participants to account for their experiences and actions within their own frame of reference, rather than one imposed by the researcher. He states that it is better to move during the interview from questioning actions to experiences, and from concrete to abstract.
- Avoid presenting categories of descriptions that delimit the meaning of the category from the interview extracts.
- Take great care in establishing the categories in ways which most fairly reflect the responses made.
- Explore the relationships between the categories of description and analysis of the meaning of each category in relation to every other one.

3.8. Theoretical foundations of phenomenography

3.8.1. Ontological perspective in phenomenography

Since phenomenography is a relatively new approach to educational research, it is only recently that ontological and epistemological assumptions as well as methodological issues regarding this approach have been clarified (Åkerlind, 2005; Bowden & Walsh, 2000; Dall’Alba & Hasselgren, 1996; Hasselgren & Beach, 1997; Marton & Booth, 1997; Richardson, 1999).

Phenomenography represents a relational or non-dualistic ontological stance in so far as the reality that exists is always “experienced reality”, which implies “that people’s different ways of understanding or experiencing the surrounding world is all there is, whether these understandings are called scientific or not, whether they are called everyday understandings or not” (Uljens, 1996:112). Marton (2000:105) confirms that, from an ontological perspective, there are not two worlds: a real, objective world on the one hand and a subjective world of mental representations on the other. This view is supported by Marton and Booth (1997:13) who state: “There is not a real world “out there” and a subjective world “in here”.” Marton (2000:105) substantiates this view by indicating: “There is only one world, a really existing

world, which is experienced and understood in different ways by human beings.” This one world is thus both simultaneously objective and subjective, while the experience or conception is a relationship between object and subject, hence encompassing both. This implies, as stated by Uljens (1996:113), that it is:

... impossible to reach absolute truth about something – *in principle*, one should add – since new interpretations are continuously made both by ourselves and by every new generation. In this sense reality *is* experience. Scientific truth is, according to this position, absolute only in a relative sense.

Phenomenography is regarded as non-dualist, since the subject, is not regarded as a separate entity from the object (Marton, 2000:104; Trigwell, 2006: 369). It is these subject-object relations that phenomenography represents as experiences, which when combined represent the phenomenon as a whole (Yates *et al.*, 2012:98). It does not take neither a positivist/objective approach, independent of human interpretation, nor does it take a subjectivist approach, focusing on internal constructions by the subject (Marton and Booth 1997:13). The object of study is not the phenomenon per se, but the relationships as illustrated in **Figure 3.2**, based on the work of Bowden (2005) as presented by Mann, Dall’Alba & Radcliffe (2007:7).

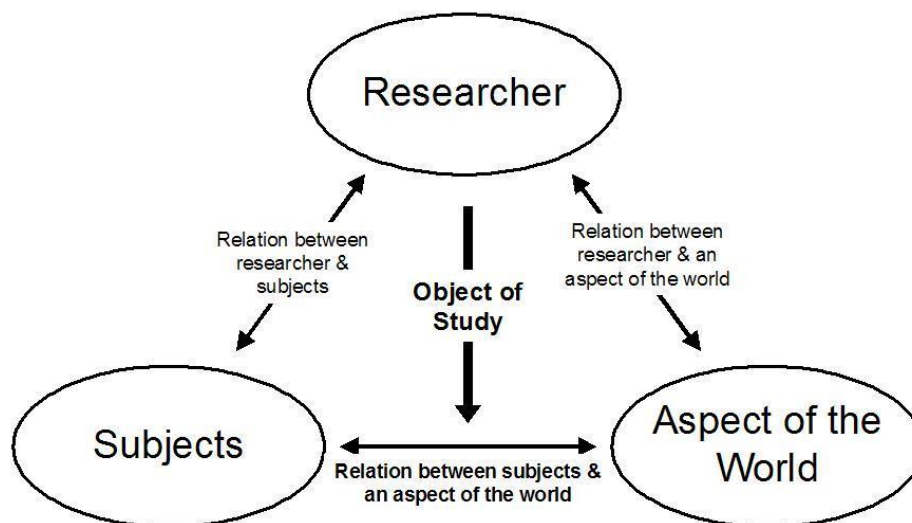


Figure 3.2: Focus of Phenomenography
based on Bowden (2005) in Mann, Dall’Alba and Radcliffe (2007:7)

The researcher should have an understanding of this relationship to ensure that the research process is carried out in a focused manner, while an understanding of the research topic is needed to interpret the actual experiences of the participants/subjects participating in the research project. However, Sandberg (1997) warns that any preconceptions or theories about the phenomenon of the world as experienced by the participants/subjects that the researcher has from his or her own experiences must be held at bay during the research

process, thus allowing the researcher to be open to other ways of experiencing the particular phenomenon being studied. Holding back on preconceptions and theories about the phenomenon being studied will help the researcher to present the experiences of participants/subjects as genuinely and authentically as possible.

3.8.2. Epistemological perspective of phenomenography

The ontological perspective in phenomenography is closely related to the epistemological assumptions. It is important at this point to elaborate on the distinction between situations, experiences and phenomena. Marton and Booth (1997:82) contend that “a situation is always experienced within a sociospatiotemporal location – a context, a time, and a place”, whereas a phenomena is experienced as “abstracted from or transcending such anchorage”, hence they conclude that “we cannot separate our understanding of the situation and our understanding of the phenomena that lend sense to the situation”. The situation and the phenomena are inextricably intertwined in experience as stated by Marton and Booth (1997:83):

Not only is the situation understood in terms of the phenomena involved, but we are aware of the phenomena from the point of view of the particular situation. Furthermore, not only is our experience of the situation moulded by the phenomena as we experience them, but our experience of the phenomena is modified, transformed, and developed through the situations we experience them in.

It is however necessary to acknowledge, that although situations and phenomena are inextricably intertwined in experience (Marton & Booth, 1997:83), as researchers we can opt to focus on ways of experiencing the situation or ways of experiencing the phenomenon.

In a phenomenographic study the different ways in which participants/subjects are aware of a particular phenomenon within the context, time and location of a situation can be distinguished in terms of the differences in the structure of awareness and the corresponding meaning assigned to the phenomenon. According to Marton and Booth (1997:87) an experience has a structural aspect and a referential aspect. Svensson (1984) in Marton and Booth (1997:87) defines the structural aspect as two-folded in terms of “discernment of the whole from the context on the one hand, and discernment of the parts and their relationships within the whole” on the other hand. In addition, the referential aspect, intimately intertwined with the structural aspect of the experience, focuses on the meaning assigned to the phenomenon through the relationship between the internal and external horizons. The structural aspect differentiates between an external horizon and an internal horizon (Marton & Booth, 1997:88).

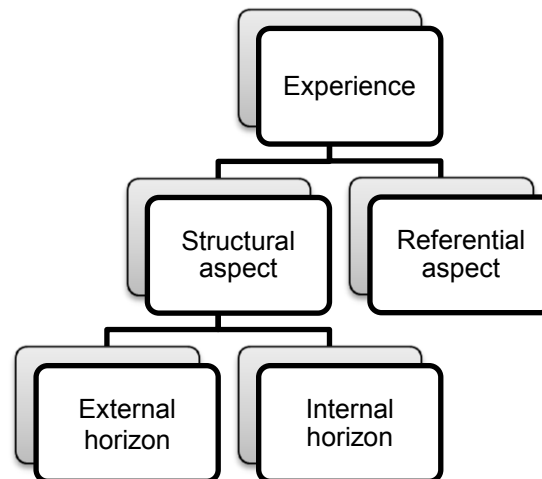


Figure 3.3: The unit of an experience (Marton & Booth, 1997:88)

The external horizon of the structural aspect of a phenomenon is a way of delimiting the object of investigation from its context and by relating it to the same or other contexts, while the internal horizon of the phenomenon is a way of delimiting the components or parts of the phenomenon and relating them to each other and to the whole (Svensson, 1984 in Marton, 1994a). The external horizon refers to “the way in which the phenomenon we experience in a certain way is discerned from its context ... [and] how it is related to its context as well” (Marton & Booth, 1997:89). Pang (2003:148) indicates that to experience something in a particular way, a person must discern a whole from the context, and at the same time understand its relationship to the context as well as to other contexts. The external horizon extends from the immediate boundary of the experience through all other contexts in which similar and related happenings have been experienced. The internal horizon refers to the parts and their relationship, together with the part-whole structure discerned therein. The external and the internal horizons together make up the structural aspect of the experience as shown in **Figure 3.3**.

In phenomenography the term “conception” is used to refer to “people’s ways of experiencing a specific aspect of reality and that these conceptions are typically presented in the form of categories of description” in terms of data analysis (Sandberg, 1995:157 in Bowden, 2000:15). These categories of description are often based on ways of understanding expressed by more than one participant/subject during the interview process and are mutually exclusive, yet hierarchically related to one other (Larsson & Holmström, 2007:56). Defining the structural relation between the categories should be a further step in a phenomenographic analysis. Åkerlind (2005:322) indicates that the “outcome space” as a structured set of the different ways of looking at the “collective human experience of

phenomena holistically” represents the “full range of possible ways of experiencing the phenomenon in question, at this particular point in time, for the population represented by the sample group collectively”. More details about the categories of description and an outcome space will follow later in this chapter.

3.8.3. Methodological perspective in phenomenography

Phenomenography is empirical research. Since phenomenographers seek to identify and understand the multiple conceptions that a group of people have of a particular phenomenon, the research methodology is primarily interpretative and qualitative in nature. Phenomenographic research methods differ from other research analysis methods such as thematic analysis that focuses on similarities of conceptions or experiences, and case-based analysis that emphasises individual subjects. The phenomenographic methodology, according to Boon, Johnston and Webber (2007:210), provides researchers with a means of constructing “rich, multifaceted representations of the variation regarding phenomena”. By focusing on variation, it allows “the exploration of the array of perceptions and conceptions of a particular phenomenon, which in turn allows for a greater and more detailed understanding of the phenomenon”. This view is supported by Daly, Adams & Bodner (2012:193) who claim that the value of using phenomenographic research methods is the ability to create a landscape view that compasses diverse perspectives of the phenomenon. By adopting such a holistic approach, it is possible to distinguish between critical features of this landscape of awareness, while simultaneously highlighting the relationship among these variations. These variations can range from narrow to broad, external to internal, surface to deep level of awareness. Therefore, phenomenographic analysis targets a collection of individual experiences (Åkerlind, 2005 in Daly *et al.*, 2012:193) and the results of a phenomenographic analysis reflect not the individual meanings held by individual participants in the study, but the collection of understandings, or categories of description, among a group of research participants/subjects. The researcher is also not studying his or her own experience or conceptions of the phenomenon, but that of their research participants collectively as a group.

Phenomenographic studies typically involve small groups of participants (subjects) and use open, explorative data collection methods to investigate the qualitatively different ways in which a phenomenon can be experienced (Cope, 2004:6; Svensson, 1997:169). The utterances of the participants in the phenomenographic study are combined to form “a pool of meaning” with regard to the phenomenon (Cope, 2004:6) and the goal of this type of research approach is to uncover “deep descriptions of these variations” of how

subjects/participants give meaning to, and interact with an aspect of the world (Daly, *et al.*, 2012:193).

3.8.3.1. Data collection in phenomenography

Bowden (1996:55) as well as Mann *et al.* (2007) proclaim that phenomenographic studies should also have a coherent purpose and methodology throughout in terms of the design of the investigation, the development of data collection processes, the collection of data and the analysis and interpretation of the data. **Figure 3.4** shows the phenomenographic research process described by Bowden (2000:7).

In addition, Ashworth and Lucas (2000:300) provide the following practical guidelines for conducting phenomenographic research:

The researcher should tentatively identify the broad objectives of the research project, the phenomenon under investigation, recognising that the meaning of this area might be quite different for the research participant.

The selection of participants should avoid presuppositions about the nature of the phenomenon or the nature of conceptions held by particular “types” of individual while observing common-sense precautions about maintaining “variety” of experience.

The most appropriate means of obtaining an account should be identified, allowing maximum freedom for the research participants to describe their experience.

In obtaining experiential accounts the participants should be given the maximum opportunity to reflect, and the questions posed should not be based on researcher presumptions about the phenomenon or the participant, but should emerge out of the interest to make clear their experience [*italics in original text*].

The researcher’s interviewing skills should be subject to ongoing review and changes made to interview practice if necessary. For instance, stylistic traits which tend to foreclose description should be minimised.

The transcription of the interview should be aimed at accurately reflecting the emotions and emphases of the participant.

The analysis should continue to be aware of the importation of presuppositions, and be carried out with the maximum exercise of empathic understanding.

Analysis should avoid premature closure for the sake of producing logically and hierarchically-related categories of description.

The process of analysis should be sufficiently clearly described to allow the reader to evaluate the attempt to achieve bracketing and empathy and trace the process by which findings emerged.

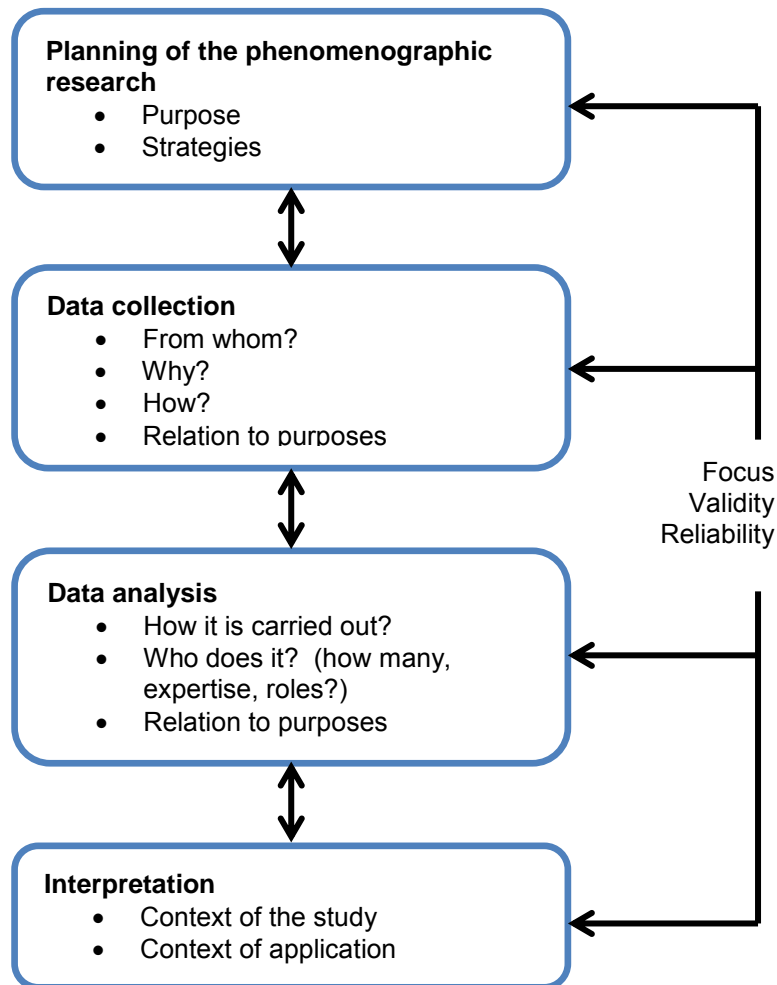


Figure 3.4: Phenomenographic research process
Source: Bowden (2000:7)

3.8.3.1.1. Conducting phenomenographic interviews

Qualitative data is often collected by means of face-to-face interviews, although Edwards (2007) in Yates *et al.* (2012:102) indicates that other methods such as drawings, focus groups, written surveys can also be used. Reed (2006:5) states that an interview is the most common method of data collection used in phenomenographic studies and that written text by the person(s) in response to a specific question has also been used in published phenomenographic studies as an alternative method. According to Bowden, (2000:9) the phenomenographic interview has a focus – the different ways in which interviewees understand the phenomenon – and this focus is maintained throughout the interview. Interviewees are encouraged throughout the interview to reflect and reveal their way of experiencing the phenomenon. The interviewer should ask interviewees to elaborate on their experiences and what they mean by certain concepts.

Although the interview itself is explorative in nature, “it is not necessarily explorative in the sense of asking and talking about a lot of different things forming part of the experience of an interviewee”. The interview is focused on exploring conceptions of objects or phenomena and the exploration concerns the interviewees delimitation and experienced meaning of these objects (Svensson, 1997:169). Based on the relational character of conceptions described during the interview process, Svensson (1997:169) indicates that not everything said in an interview situation is necessarily relevant or equally relevant in describing a conception. It is therefore important to adopt an analytical approach to the interview process.

Bruce (1994:49) in Yates *et al.* (2012:102) describes the phenomenographic interview as a “specialised form of the qualitative research interview”. Although data may be gathered at an individual level, this is the starting point for “building a picture of collective awareness” concerning how the particular phenomenon may be experienced collectively by a group of research participants/subjects and the variations in terms of their experiences (Yates *et al.*, 2012:102). Reed (2006:5) indicates that in a typical phenomenographic study, people would perform a task or engage in an activity, e.g. the discussion of technical concepts as experienced by students. This would be followed by a participant’s report, including a description of how they had gone about this task or activity. Alternatively, the interview could start with an initial question or problem being posed, followed by questions asking interviewees to elaborate on their experiences and what they meant by certain concepts. Ashworth and Lucas (2000:296) suggest that more attention should be paid to “the processes of empathy and setting aside of presuppositions (*‘bracketing’*)”. The authors argue that it is “a paramount requirement for phenomenography to be sensitive to the individuality of conceptions of the world” (Ashworth & Lucas, 2000:297). They point out that this is achieved through the process of “bracketing” the interviewer’s own assumptions and theories, and being empathic to the interviewee’s experiences of the particular aspect of the world under consideration. Ashworth and Lucas (2000:297-298) propose that although the interviewer cannot detach him/herself from their own life-world, since this is what enables the researcher to interpret what is being said during the interview process, they need to focus pertinently on the experiences of the interviewee and bracket their own presuppositions such as:

- Importing earlier research findings;
- Assuming pre-given theoretical structures or particular interpretations;
- Presupposing the investigator’s personal knowledge and belief;
- Assuming, prior to acquaintance with the nature of the experience itself, specific research techniques;

- Importing the researcher's notions of cause-and-effect into the description of the experience.

Phenomenographic interviews are usually voice recorded and transcribed verbatim either by the researcher him/herself or by a professionally trained transcriber. Since the focus is not on linguistic elements as a method such as discourse analysis, it is not necessary to record every tonal inflection or pause in speech. It is more important that the spoken word is transcribed as accurately as possible, as it forms the basis for the process of data analysis (Reed, 2006:7).

3.8.3.1.2. Design of the interview questions

The typical phenomenographic interview is semi-structured and open-ended, with only a few predetermined key questions. Although this approach is different from the archetypal qualitative interview where a detailed framework of the interview is developed beforehand, it does not suggest that the interview is without focus. Reed (2006:5) suggests that the object of the study should at all times be held central to the interviewer's focus and should guide the interview situation. This implies that the main purpose of the interview is to explore the interviewee's experience as thoroughly as possible by probing and following up on comments made during the interview process. Cope (2004:12-13) recommends that the questions be designed to provide data which will help establish critical variation in a group of participants' ways of experiencing a phenomenon, by taking into account dimensions of variation, "values" in dimensions of variation, the existence and nature of relationships between dimensions of variation, the nature of the boundary between internal and external horizons, and the meaning of the phenomenon inherent in the structure.

The phenomenographic interview as a legitimate way of exploring a person's experience of a phenomenon has been the target of critique over the years (Reed, 2006:5). Säljö (1997:174) in Reed, 2006:5) cautions researchers to be careful about what they decide a conversation is indicative of, especially considering the weight that researchers, using a phenomenographic approach, place on the conversation during the interview process. Reed (2006:6) suggests that these possible problems with the phenomenographic interview can be addressed by ensuring that "context" as an important aspect of the phenomenographic study is kept in mind during the implementation of the research approach.

3.8.3.2. Participant selection and sample size

The purposive or purposeful sampling, sometimes referred to as theoretical sampling (Mason, 2002:138), is commonly used in phenomenographic studies. Purposive sampling has a strategic focus and the relationship between the sample and the wider universe is not ad hoc, accidental, purely opportunistic or indeed representational (Mason, 2002:124). It is guided by “a combined empirical and theoretical logic” which impacts on how the group of participants/subjects are selected for the study on the basis of their relevance to the research questions, the theoretical position and analytical framework developed by the researcher, and most importantly, the argument or explanation being developed by the researcher (Mason, 2002:124). The processes of sampling, data generation and data analysis are viewed dynamically and interactively, allowing the researcher the flexibility to make decisions along the way (Mason, 2002:138). Mason (2002:138) recommends that instead of finalising these aspects in the initial stages of the research process, the researcher could make preliminary decisions about sampling which will in due course lead the researcher to a position where an informed decision can be taken.

Yates *et al.* (2012:103) suggest that the participants in a phenomenographic study should be selected according to their appropriateness to the purpose of the research study, which means that they should have experience of the phenomenon being explored. To this end, the identification of interviewees is deliberately non-random, as their selection is influenced by the specific phenomenon being explored (Åkerlind, 2005; Boon *et al.*, 2007; Reed, 2006). Reed (2006:6) states that in determining the individuals most likely to provide variation in terms of the different ways of experiencing a phenomenon, consideration is not necessarily given to being inclusive of gender or particular cultural groups.

Another important matter pertaining to sampling relates to the number of people to be interviewed about their experience of a particular phenomenon. Mason (2002:134) indicates that in the case of theoretical or purposive sampling it is not important to consider whether the size of the sample will be statistically representative of an entire population, but rather to ensure that the sample provides access to sufficient data, as well as the right focus enabling the researcher to address the research questions. Mason (2002:134) also mentions the idea of “theoretical saturation”, a term introduced by Glaser and Strauss (1967) which is often used in traditional qualitative research when considering the size of the sample. Reed (2006:6) states that based on Glaser and Strauss (1967:65), theoretical saturation occurs when “no additional data are being found ... [and] the researcher becomes empirically confident that a category is saturated”. However, Reed (2006:6) warns that this technique is

not appropriate in phenomenographic research, since phenomenographic data analysis does not entail “keeping score” of fragments of experiences of individuals’ interactions with phenomena as would be the case in content analysis where predetermined categories are used. Trigwell (2000:66) indicates that between fifteen to twenty interviewees would be the ideal number, and that between “ten to fifteen would be the minimum to create a reasonable chance of finding variation in the range”. Nevertheless, Yates *et al.* (2012:103) argue that there is no prescriptive sample size for a phenomenographic study; the authors support the view of Bruce (1997) that the sample should be of sufficient size to gather suitably rich descriptions of people’s varying conceptions about the phenomenon of interest.

3.8.3.3. Data analysis in phenomenography

Phenomenographic data analysis focuses on the relationship between the subjects/group of people and the phenomenon, as usually revealed through the transcripts of voice-recorded interviews and eventually by discovering categories of description that emerge from the data. The data is therefore not analysed in terms of predetermined classifications; the aim is to discover categories of description through a process of discovery rather than by construction (Walsh, 2000:20). The findings of a particular phenomenon are presented in a set, consisting of a limited number of often hierarchically related categories of description. The hierarchical structure is typically based on an increased complexity of ways of experiencing a particular phenomenon, and on the logical inclusiveness of the categories (Cope, 2004:6). The categories of description, in conjunction with the relationships among the categories, are known as the outcome space of phenomenography (Marton & Booth, 1997:117; Daly, *et al.*, 2012:1993).

Yates *et al.* (2012:103) indicate that there is no single process or technique prescribed in literature for the analysis of phenomenographic data and that an array of different approaches is reported. The absence of a distinct data analysis approach has come under scrutiny by a number of researchers such as Ashworth and Lucas (2000), Richardson (1999), Sandberg (1996) and Uljens (1996). Prosser (2000:35), on the other hand, argues that it is not possible to prescribe a set of techniques for conducting phenomenographic studies, while acknowledging that this creates difficulties for those wishing to analyse the validity and reliability of such methods. Åkerlind (2002) in Yates *et al.* (2012:104) provides three guiding principles for phenomenographic data analysis:

- It is important to set aside or limit any predetermined views and to refrain from drawing premature conclusions about the nature of the categories of description.

- A focus on the collective experience has to be maintained by viewing the transcripts and the emerging categories of description as a set (instead of as individual transcripts and categories of description).
- Phenomenographers should search for meaning or variation in meaning across interview transcripts, and for the structural relationships between these meanings.

A description of a typical phenomenographic data analysis approach is provided by Booth (1997:138) in Cope (2000:81):

It consists of studying the interview transcripts, both individually and alongside one another, studying sets of extracts both in and out of their original contexts, seeking distinct similarities and differences. The researcher immerses himself or herself in the material, trying to see the total meaning in what the research subjects said and did, resolving apparent contradictions, knitting together as whole a picture of the meaning of the phenomenon as possible, not only for individual subjects but also for the group. Eventually a spectrum is seen. As the material is studied further, features of the spectrum might shift, new features might be resolved and others merge, logical links might be seen between features and the phenomenon in question, and spectra might be seen in different dimensions. The set of categories arrived at can be considered to be satisfactory when an internal logical relationship, a hierarchy, is seen to exist between them, which in turn can be related to other descriptions of the phenomenon in question. The whole process may need to be repeated many times before this state is reached.

Hasselgren and Beach (1997) distinguish between five modes of phenomenographic data collection and analysis, namely: experimental, discursive, naturalistic, hermeneutic and phenomenological. Discursive phenomenography is viewed by these authors as the least sophisticated way of doing phenomenography and indicate that it consists of the following steps: conversation, transcription, compilation, analysis and conceptions as illustrated in **Figure 3.5**.



Figure 3.5: Different steps in discursive phenomenography (Hasselgren & Beach, 1997)

Although most phenomenographic studies reported in literature bear some relation to these steps, different approaches to data analysis in particular have been reported in literature. A four-stage approach defined by Marton, Carlsson and Halasz (1992) in Yates *et al.* (2012:104) consists of:

- **First stage:** Identifying relevant data as “pools of meaning”. This pool of meaning is essentially a decontextualised collection of fragments from all the interviews that refer to an experience of the phenomenon in question.

- **Second stage:** Sorting data into “pools of meaning” based on similarity and exclusive of reference to individual participants.
- **Third stage:** Contrasting groups of similar data and writing a category of description of each.
- **Fourth stage:** Verifying a portion of data by engaging an independent judge to establish inter-judge reliability.

Another data analysis approach reported by Sandberg (1994:86) in Yates *et al.* (2012:104) consists of five stages, namely:

- **First stage:** Becoming familiar with the transcripts.
- **Second stage:** The referential aspect of the analysis.
- **Third stage:** The structural aspect of the analysis.
- **Fourth stage:** The intentional constitution of the conception.
- **Fifth stage:** Establishing the outcome space of the conceptions.

McCosker, Barnard and Gerber (2004) describe a seven-stage data analysis process, namely: familiarisation, condensation, comparison, grouping, articulating, labelling and contrasting. In a more recent study, Yeo (2012) describes an eight-stage analysis process adopted for a phenomenographic study to determine students’ conceptions of formal research procedures, consisting of:

- **First stage** – data organization: Create and organize files for storing data.
- **Second stage** – familiarisation: The interview transcripts were read a number of times to ensure familiarity with the material and to make any corrections, if required.
- **Third stage** – compilation: The responses of the participants were compiled under each question. Significant or unusual elements in their answers were highlighted.
- **Fourth stage** – condensation: A description was written for each answer, focusing on the important parts of the dialogue that corresponded with the purpose of the study – personal experiences and the essence of the phenomenon were described. Statements were selected to provide a representative version of the qualitatively different ways in which formal research procedures and the design process were regarded, as it appeared from the respective written responses.
- **Fifth stage** – grouping: Answers of the participants under similar themes were preliminarily classified or grouped together (significant statements) and placed in categories (themes).
- **Sixth stage** – comparison: The categories were compared and analysed. Sources of variation or agreement within statements as selected in stage three were identified – that is, fundamental characteristics were determined and the differences and similarities amongst them were noted.

- **Seventh stage** – naming: The categories were named, based on the analysis. Patterns in which formal research procedures were experienced, viewed and described were identified.
- **Eighth stage** – contrasting comparisons: The categories were compared for differences and similarities between them. A description of the characteristics was included under each category.

Generally speaking, phenomenographers describe the analysis of voice recordings and verbatim transcriptions as an iterative, inductive process of decontextualisation and recontextualisation. During the decontextualisation process the researcher separates the data from the original context of individual cases and assigns codes to units or clusters of meaning that represent the phenomenon of interest. In the recontextualisation process the researcher usually examines the codes for patterns and then reintegrates, organise and reduce the data around central themes and relationships drawn from the cases and narratives. Walsh (2000) argues that this process of analysis can be seen as either a construction of the categories or as a process of discovery of the categories. In the case of “discovery” the categories of description are already present in the data and the process of analysis is to allow these categories to emerge during the process of analysing the data. Emphasis is placed on the similarities and differences that exist in the data, rather than the hierarchy of categories (Walsh, 2000:25). In the case of “construction”, the categories of description “emerge from the relationship between the data and the researcher”, hence “the researcher’s perspective influences the categories ‘in’ the data” (Walsh, 2000:20). Bruce (1997:103) in Reed (2006:8) suggests that both these views are appropriate in the constitution of categories of description:

In the same way that we see conceptions as being constituted in the relation between perceiving subject and appearing object (both are active in constituting the conception); so we may see categories of description as being constituted in the relation between researchers and the data (both are active in constituting the categories). Analysis is a process of discovery because the conceptions reveal themselves through the data, and it is a process of construction because the researcher must identify and describe these in terms of referential and structural elements.

3.8.3.4. Phenomenographic results

3.8.3.4.1. Categories of description

The categorisations of the variation in ways in which a phenomenon is experienced by research participants as a collective pool of meanings are logically related to one another and referred to in phenomenographic terms as “categories of description” (Marton, 1981:177). It is important to distinguish between knowledge interests of phenomenography which are conceptions (i.e. ways of experiencing) and how this relates to categories of

description. Sandberg (1997) in Yates *et al.* (2012:105) suggests that a primary distinction between conceptions and categories of description is the focus on individual or collective ways of experiencing. While conceptions refer to people's ways of experiencing a particular aspect of reality, categories of description denote, according to Marton (1981:177), "a kind of collective intellect", representing multiple or collective conceptions. Marton and Booth (1997:128) explain this difference as follows:

When we talk about "a way of experiencing something" we usually do so in terms of individual awareness ... When we talk about "categories of description" we usually do so in terms of qualitatively different ways a phenomenon may appear to people of one kind or another. Thus categories of description refer to the collective level.

Marton (1988:181) in Yates *et al.* (2012:106) defines four key qualities that underpin categories of description, namely: relational (the subject-object relation comprising the conception); experiential (based on the experience of participants in the study); content oriented (focusing on the meaning of the phenomenon under investigation); and, finally qualitative (descriptive in nature). Almost a decade later, Marton and Booth (1997:125) in the work: *Learning and Awareness* proposed three criteria for the quality of a set of categories of description:

The first criterion that can be stated is that the individual categories should each stand in clear relation to the phenomenon of the investigation so that each category tells us something distinct about a particular way of experiencing the phenomenon. The second is that the categories have to stand in a logical relationship with one another, a relationship that is frequently hierarchical. Finally, the third criterion is that the system should be parsimonious, which is to say that as few categories should be explicated as feasible and reasonable, for capturing the critical variation in the data.

At this point, it is necessary to refer to the two faces of variation within phenomenography⁶ as defined by Marton and Pang (1999): The first face of variation refers to the categories of description and the outcome space which are derived from the study of the variation between ways of experiencing the same phenomena. The second face of variation refers to the variation corresponding to the critical aspects (discerned and focused upon simultaneously) of the phenomenon, i.e. the dimensions of variation, which are scrutinised within the framework of the structure of awareness, within a unit of conception.

In defining the different categories of description, it is important to consider the following distinctions defined by Marton and Tsui (2004) in Åkerlind (2008:637) which relate to the part-whole relationships in phenomenography:

⁶ These different faces of variation as defined by Marton and Pang (1999) must not be confused with variation theory, sometimes referred to as "new phenomenography", which reflects according to Bussey, Orgill and Crippen (2013:10) a shift within the phenomenographic research tradition. Orgill (2012:3391) in Bussey *et al.* (2013:10) indicates that the link between phenomenography and variation theory is variation: "describing it (phenomenography) or explaining why it exists (variation theory)".

- **Contrast:** In order to experience a phenomenon, it is necessary to experience something else to compare it with. Contrast encourages the discernment of the whole from its context, and thus discernment of the way in which the whole relates to its context (Åkerlind, 2008:638).
- **Generalisation:** In order to fully understand a phenomenon, by experiencing varying instances of the same phenomenon it is possible to separate the essential features of the phenomenon from irrelevant features. Generalisation involves comparing “wholes” with other “wholes”, in other words, comparing one way of seeing the phenomenon with other ways of seeing the phenomenon (Åkerlind, 2008:638).
- **Separation:** In order to experience particular features of a phenomenon, it is necessary to separate these features from other features of the phenomenon, i.e. by experiencing some features as varying and other features that remain invariant. Åkerlind, (2008:638) refers to separation as a comparison of parts (certain features of the phenomenon) with other parts (other features of the phenomenon).
- **Fusion:** In order to take all of the essential features of a phenomenon into account at the same time, these features must be experienced as varying simultaneously, in relation to others. Fusion enables the discernment of the part-whole structure of a phenomenon, in other words, the relationship of the parts (different features of the phenomenon) to the whole phenomenon (Åkerlind, 2008:638).

Each category of description details the referential and structural aspects of how the phenomenon is experienced (see **Figure 3.3** and **Paragraph 8.2**). It involves describing the difference in meaning in terms of the primary focus of each experience, and the difference in structure (that is the structure of awareness). It is furthermore accompanied by a prose description of the category along with illustrative quotes sourced from interview data (Yates *et al.*, 2012:106). Quotes from interview transcripts serve to illustrate how each category differs from the other categories of description (Marton, 1986 in Cope, 2000:82; Yates *et al.*, 2012:106).

3.8.3.4.2. Outcome space

The final outcome of phenomenographic research involves representing the categories of description in an outcome space. The outcome space is according to Marton (2000:105) “the logically structured complex of the different ways of experiencing an object” which is based on “the collective human experience of phenomena holistically”. Åkerlind, (2005:322) states that the outcome space represents the “full range of possible ways of experiencing the phenomenon in question, at this particular point in time, for the population represented by the sample group collectively”. It therefore implies that the outcome space portrays the complex

of different experiences which together comprise the phenomenon, and represents the phenomenon in the same way as categories of description represent the conceptions (Marton & Booth, 1997:125; Yates *et al.*, 2012:106). The outcome space represents therefore both the phenomenon and the various ways in which it can be experienced. The qualitatively different ways of experiencing a particular phenomenon, as a rule, form a hierarchy. Marton and Booth (1997:125) claim that this hierarchical structure can be defined in terms of increasing complexity, in which the different ways of experiencing the phenomenon in question can be defined as “subsets of the component parts and relationships within more inclusive or complex ways of seeing the phenomenon”. These can even be viewed, according to Booth and Marton (1997:125) as “different layers of individual experiences”.

In conclusion, the outcome space is viewed as “a robust constituted set of logically related categories comprising distinct groupings of aspects of the phenomenon” (Reed, 2006:9). It may be presented as a table, image or diagram, in which case it serves the purpose of depicting how each category relates to each other. Daly *et al.*, (2012:2014) describes the outcome space as a “pictorial representation”, Bruce (1997:87) in Yates *et al.* (2012:106) describes the outcome space as a “diagrammatic representation” of the categories of description, while Säljö (1998,44) in Yates *et al.* (2012:106) claims that it reflects “a map of a territory”, interpreting how people conceive a particular aspect of reality.

3.8.3.5. Validity and reliability of phenomenographic research

The general validity and reliability of the results of phenomenographic studies is also a contentious issue and one that is argued theoretically in the phenomenographic literature with no clear resolution of the issues (Åkerlind, 2005; Cope, 2004). Cope (2004:8) indicates that the validity of phenomenographic studies is based on the researcher’s justification for presenting the outcome space and claims based on those results, as credible and trustworthy. “Justification lies in a full and open account of a study’s methods and results” (Cope, 2004:8). He suggests that as part of this full and open account, it seems reasonable to expect that the following be considered (Cope, 2000:84):

- The researcher’s background is acknowledged.
- The characteristics of the participants need to be clearly established, providing a background for any attempt at applying the results in other contexts.
- The steps taken to collect unbiased, reflective data need to be included.
- Attempts to approach data analysis with an open mind rather than imposing an existing structure on the data need to be acknowledged.

- The researcher must account for the process used to control and check interpretations made throughout the analysis process (Sandberg, 1997).

Sandberg (1994) in Mann *et al.* (2007: 20) propose three phases in the phenomenographic process where communicative validity is relevant, namely during the interview process, in the analysis of the data and when communicating the results to other researchers and professionals. These three phases of communicative validity will be considered in this phenomenographic study and are addressed later in this chapter.

Reliability as a scientific concept refers to the replicability of results which implies that if the research project is repeated by another researcher, the results derived from the study should be reliable. In phenomenographic studies, this interpretation would refer to the replicability of the outcome space. Cope (2004:9) states that although broad methodological principles are adhered to in phenomenographic studies, the open, explorative nature of data collection and the interpretative nature of data analysis will hamper replicability. In some phenomenographic studies reported in literature, interjudge reliability has been used, whereby either multiple researchers within the study or researchers outside the study independently classify the interview transcripts against the categories of description. Sandberg (1997) questions the use of interjudge reliability and suggests that interpretative awareness be used as an alternative, which implies that the researcher has to be “aware of their interpretations during the research process and demonstrate how the interpretation processes have been controlled and checked” (Cope, 2004:10).

Collier-Reed, Ingerman and Berglund (2009) indicate that credibility and dependability as principles of trustworthiness must be considered carefully throughout the study, specifically in terms of the relationships between the object of study, the researcher and the research purpose and outcomes. In terms of credibility, these authors suggest that the researcher should focus on content-related credibility by having a comprehensive grasp or understanding of the topics related to the phenomenon under investigation; and that the data collection and analysis methods such as sample composition, interview process and development of categories of description and outcome space should be done with sensitivity and care. In addition, communicative credibility should be considered to ensure that the researcher is able to argue persuasively for the particular interpretation he/she is proposing (Åkerlind, 2005:330). These authors suggest that dependability is more appropriate to use in phenomenographic studies than reliability and argue that dependability will allow for consistency of data interpretation and, accordingly, for consistency in research findings (Collier-Reed *et al.*, 2009:349).

3.9. Using phenomenography to investigate academic staff members' conceptions of graduate attributes in Applied Design programmes at a University of Technology

3.9.1. Introduction

As indicated earlier in this chapter, phenomenography as a research approach has been used in various studies on conceptions of academics regarding teaching (e.g. Prosser, 2000); academics' conceptions of curriculum (e.g. Fraser & Bosanquet, 2006); embedding graduate attributes in higher education curricula (e.g. Barrie, 2007; Bath, Smith, Stein & Swann, 2004); design education (Adams *et al.*, 2011; Daly *et al.*, 2008; Daly *et al.*, 2012; Kleiman, 2008; Paton & Dorst, 2010; Yuen, 2007) and design specialisations, such as fashion (Drew, Bailey & Shreeve, 2002) over the past few years.

For the purpose of this phenomenographic study the researcher worked from the perspective that graduate attributes are “interwoven networks of clusters of skills and abilities that sit at the heart of discipline knowledge and human capability” (Barrie, 2006a:157) and that graduate attributes are related to the three domains of higher learning of knowing, doing and being which form the “building blocks” of an engaged curriculum as defined by Barnett and Coate (2005:65).

The focus of this study was on the development of graduate attributes as it manifests itself as the interconnected spaces of “knowing”, “acting” and “becoming” or “being” (Barnett and Coate, 2005) of developing design professionals in Applied Design programmes at a University of Technology. These interconnected spaces are embedded within academic staff members' embodied understanding of curriculum and teaching practice and form the main aim of this phenomenographic study. In unpacking graduate attributes in the five Applied Design programmes, commonly known as Fashion Design, Graphic Design, Jewellery Design, Industrial Design and Surface Design offered by the Faculty of Informatics and Design at the Cape Peninsula University of Technology, the concepts of “design ability” (Cross, 1990) and “design thinking” (Cross, 2011) are also discussed in more detail. As indicated by Cross (2010) in Adams *et al.* (2011:11):

While unpacking “design thinking” is important, a greater challenge is creating or finding frameworks to guide a “working synthesis” (Cross 2010) for understanding what it means to be a design professional (e.g., knowledge, skills, and skillful performance), how designers become professionals (e.g., learning progressions), and how educational programs should help prepare aspiring professionals for the challenges of professional practice. Such a framework needs to speak to multiple dimensions of learning, not just knowledge and skill progression but how learning to become a designer involves “working in a different way” such as different ways of looking at problematic situations, and providing insight into puzzling complexities such as how designers can

simultaneously display the behavior of a “novice” in some parts of design work while displaying behaviors that are more characteristic of higher levels of expertise (Lawson & Dorst 2009, p.92). Such a framework should also push us to challenge old assumptions and connect to new perspectives.

Adams *et al.* (2011:12) confirm the concern expressed by Lawson and Dorst (2009) that there is something fundamentally more to design learning than just skill acquisition which the researcher will attempt to show in this phenomenographic study as well. These authors suggest an alternative framework for understanding what it means to be a design professional (e.g. knowledge, skills and skilful performance) and how designers become professionals (e.g. learning progressions) and how design education should prepare aspiring professionals (graduates) for the challenges of professional practice. The alternative framework suggested by these authors is based on the interconnected space of knowing, acting and becoming or being design professionals. They indicate that the framework is not based on a stepwise process of moving through a fixed sequence of the seven stages from novice to expert as suggested by Dreyfus and Dreyfus (1980) and often cited in design research publications, but includes both continuity and change as understanding of practice develops. This framework accommodates multiple trajectories of development based on the notion that “as professionals learn to deal with new situations, their embodied understanding of practice evolves in qualitatively different ways” (Adams *et al.*, 2011:13).

Similarly to the discussions regarding the term “graduate attributes” (see **Paragraph 6.3 in Chapter 2**), an ongoing debate about the term “design thinking” and its meanings are taking place within the design community worldwide as indicated by Stewart (2011:517) who states:

Indisputably, the term “Design Thinking” is complex, emergent, and diverse in its construction and application. The approaches and techniques that have been associated with it include formal articulations of processes that are tacit within the expert practices of established design disciplines, as well as strategies appropriate to emerging design scenarios and practices. Within this mix there is much that is contested within the design community; much that demands critical scrutiny, and much that invites further exploration.

This study attempted to unravel the many interwoven strands of knowing, doing and becoming or being present in the different conceptions and experiences of a group of academic staff members regarding the development of graduate attributes in Applied Design programmes and how these impact on curriculum and teaching practice within this context. For this purpose, a phenomenographic study consisting of three interrelated phases of analysis was used.

3.9.2. Background and description of situation

The curricula of the current programmes in Applied Design offered by the Cape Peninsula University of Technology were developed during the late 1990s with the introduction of outcomes-based education in South Africa. At the time, Universities of Technology (formerly Technikons) mostly used the outcomes-based curriculum design principle of “design-down deliver-up” or “design-down build-back” approach, as defined by the South African Qualifications Authority (SAQA, 2000:11) which resulted in a rather narrow conceptualisation of the knowledge and skills required for complex practice in a changing world. The “design-down deliver-up” approach to curriculum design promoted by the South African Qualifications Authority (SAQA) and the Sector Education and Training Authorities (SETAs) in the late 1990s entrenched “a narrow notion of skills” (Allais, 2011:9) which resulted in Technikons during the late 1990s merely developing “a technical responsiveness in their students”, which in many cases was “reduced to a technician one in which students merely replicate a series of industry-related steps without the ability to engage with the concomitant knowledge related to the activity” (McKenna & Sutherland, 2006:19). This “design-down deliver-up” model of curriculum development was supported by DACUM⁷ (Developing a Curriculum) exercises focusing on functional task analysis appropriate to occupations. The strong voices of employers, industry and often labour organisations in a highly politicised education and training environment in the period after 1994 also resulted in a tendency to neglect disciplinary knowledge in favour of the development of workplace skills. Even the South African Qualifications Authority (2000:16) acknowledges that the word “competence” in outcomes-based education or competency models is accused of “narrowness”. Unfortunately, the remnants of this technician, competency-based approach is still evident in current curriculum documentation such as SAQA qualification registration documentation, and in programme and subject guides of Applied Design programmes offered by the Cape Peninsula University of Technology. For example:

- The purpose statement of the **National Diploma in Fashion** indicates that a learner accredited with this qualification will be competent in analysing and monitoring design processes to meet market demands and adopt advanced production technology methods to ensure cost effectiveness in relation to cost and manufacturing (SAQA ID 78629, 2013).

⁷ DACUM is an acronym for developing a curriculum. It is a one or two day storyboarding process that provides a picture of what the worker does in terms of duties, tasks, knowledge, skills, traits and in some cases the tools the worker uses. The information is presented in graphic chart form and can include information on critical and frequently performed tasks and the training needs of workers. (Source: <http://www.dacum.org/>)

- The purpose statement of the **National Diploma in Graphic Design** indicates that a qualifying learner will be competent to design and produce visual communication to professional level relevant to the formal market sector (SAQA ID 78636, 2013).
- The purpose statement of the **National Diploma in Jewellery Design and Manufacture** indicates that a qualifying learner will be competent in the production of creative jewellery using a variety of skills and materials. This will be done through the innovative application of technology and an analysis of relevant issues within the field of jewellery design (SAQA ID 78643, 2013).
- The purpose statement of the **National Diploma in Surface Design** indicates that a person accredited with this qualification will be able to work as a surface or textile designer in industry. Furthermore, the qualified person will have a basis of technical, design and administrative skills enabling him/her of being self-employed or employing others, thereby stimulating the economy (SAQA ID 60630, 2013).
- The purpose statement of the **National Diploma in Three Dimensional Design** (or commonly referred to as Industrial Design) indicates that this qualification is for product designers who have the competence to work independently as designers or who work for Industrial Designers as niche skills specialists like CAD operators, model makers or illustrators. (SAQA ID 78671, 2013).

It is clear from this rather superficial level of curriculum data analysis, that the acquisition of occupationally specific skills appears to dominate current Applied Design curricula in these different specialisations. A more detailed analysis will be presented in the next chapter of how current curricula compare with the critical cross-field outcomes defined by SAQA (2000), and with the four framing categories defined by Griesel and Parker (2008) in the SAQA-HESA baseline study on graduate attributes.

3.9.3. Ontological and epistemological perspective

Viewing this phenomenographic study from an ontological and epistemological perspective as described earlier in this chapter (see **Paragraph 3.8.1 & 3.8.2**), it implies that the conceptions and orientations (experiences of reality) of this group of academic staff members (subjects) in Applied Design programmes regarding graduate attributes (object) cannot be separated, but are in fact closely intertwined. The actual, real life experience (conception, understanding, insight, orientation, awareness, observation) is as much part of the object (graduate attributes) as it is of the subjects (academic staff members). The focus is therefore not so much on what academic staff members **think** about the concept of graduate

attributes, but what their **actual experiences** reveal about their understandings of this concept.

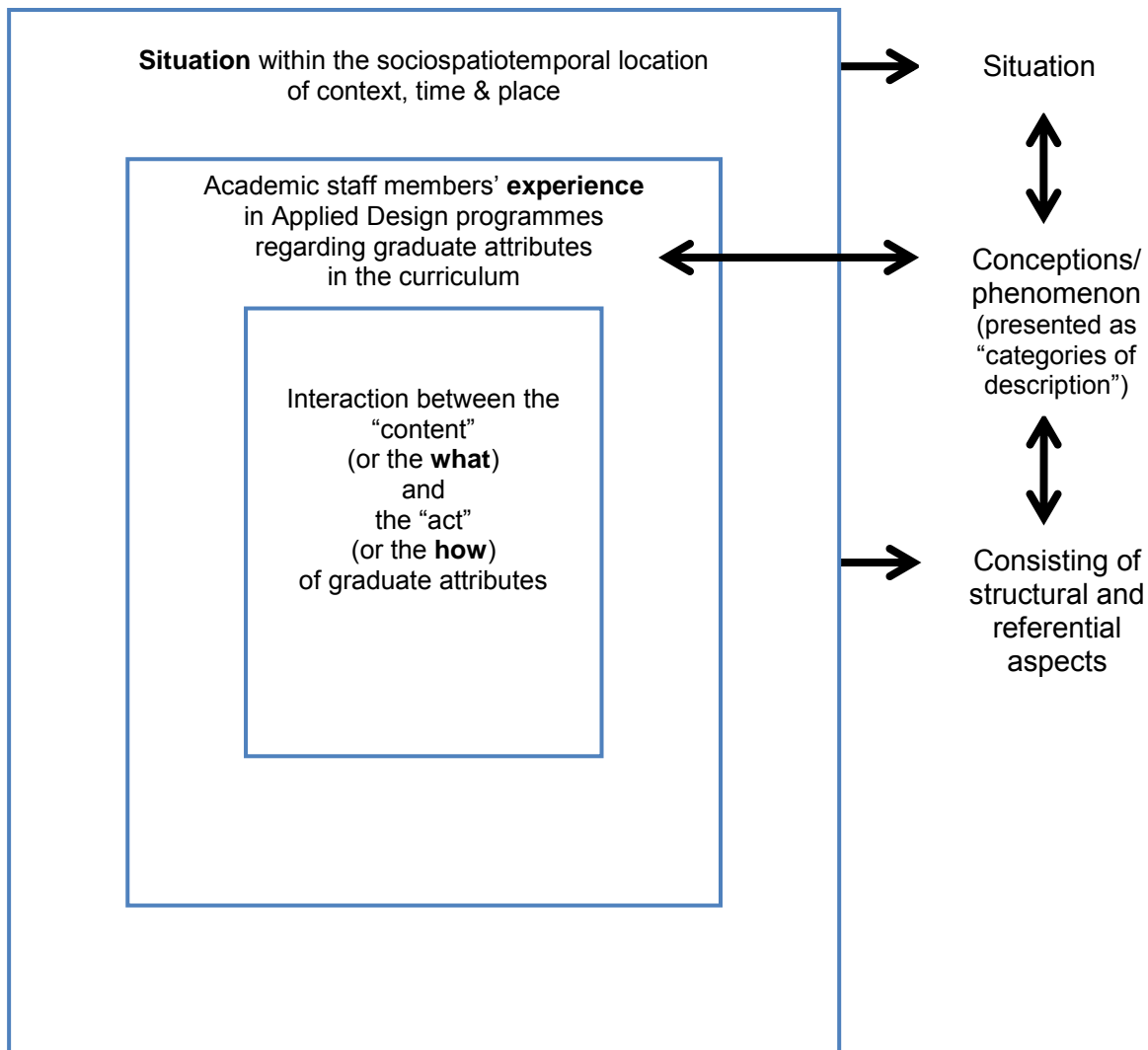


Figure 3.6: Phenomenographic conceptions relating to this research project (based on Marton and Booth, 1997:83)

These different ways of understanding of the concept of graduate attributes have both “what” and “how” aspects. The “what” aspects within the context of phenomenographic research focus on “what” the academic staff members experience, while the “how” aspects describe their orientations towards the “what” (graduate attributes) and how meaning is created from their actual experience and/or interaction with the “what” (graduate attributes). Marton and Booth (1997:87) refer to these different aspects of the structure of awareness as the structural and referential aspects. The structural aspect consists of both an external and internal horizon (see **Figure 3.3**). The external horizon of the structural aspect of a phenomenon involves delimitating the object of investigation (academics’ conceptions of graduate attributes) from its context (application within Applied Design programmes at the

Cape Peninsula University of Technology) and by relating it to the same or other contexts, while the internal horizon of the phenomenon is a way of delimiting the components or parts of the phenomenon and relating them to each other and to the whole (see **Figure 3.6**).

3.9.4. Research design, data collection and analysis

The phenomenographic study consisted of three interrelated phases of data collection and analysis as illustrated in **Figure 3.7**. The data was collected over a period of approximately 18 months at the Cape Peninsula University of Technology with approval from the Dean of the Faculty of Informatics and Design (see **Appendix A**) and on invitation from the coordinator of the Faculty Teaching and Learning. It formed part of the curriculum review process and the alignment of current qualifications to the Higher Education Qualifications Sub-framework (HEQSF) promulgated in South Africa in August 2013. The main focus of the study was not on how the curricula of these Applied Design programmes should change (although the findings of this study might influence this process), but to explore the rich, multifaceted representation of the array of perceptions, conceptions, understandings and meanings of the particular phenomenon, which in turn will provide an in-depth understanding of the phenomenon and how it impacts on current curriculum and teaching practice. The research design was aimed at creating a landscape view that allowed the researcher to distinguish between critical features of the landscape of awareness, while the researcher simultaneously reflected on the relationship among these different conceptions of and orientations towards the phenomenon. Due consideration was given to the practical guidelines of Ashworth and Lucas (2000:30) for conducting phenomenographic research, as described earlier in this chapter. The research design consisted of the following phases of data collection and analysis, as presented graphically in **Figure 3.7** and described below in more detail.

3.9.4.1. First phase of data collection and analysis

The collection of data for this phenomenographic study commenced with the analysis of curriculum documentation, namely SAQA registered qualification documents; programme and subject guides for compiling a matrix using the SAQA critical cross field outcomes (see **Paragraph 2.6.2.1.** in Chapter 2); and the four framing categories of the SAQA-HESA baseline study on graduate attributes (see **Paragraph 2.6.2.2.** in Chapter 2). The purpose of this analysis was to understand how each academic programme is structured and to determine to what extent the current curricula, individually, and also jointly as a cluster of Applied Design undergraduate programmes, address graduate attributes as defined in terms

of the SAQA critical cross-field outcomes and the four framing categories of the SAQA-HESA baseline study.

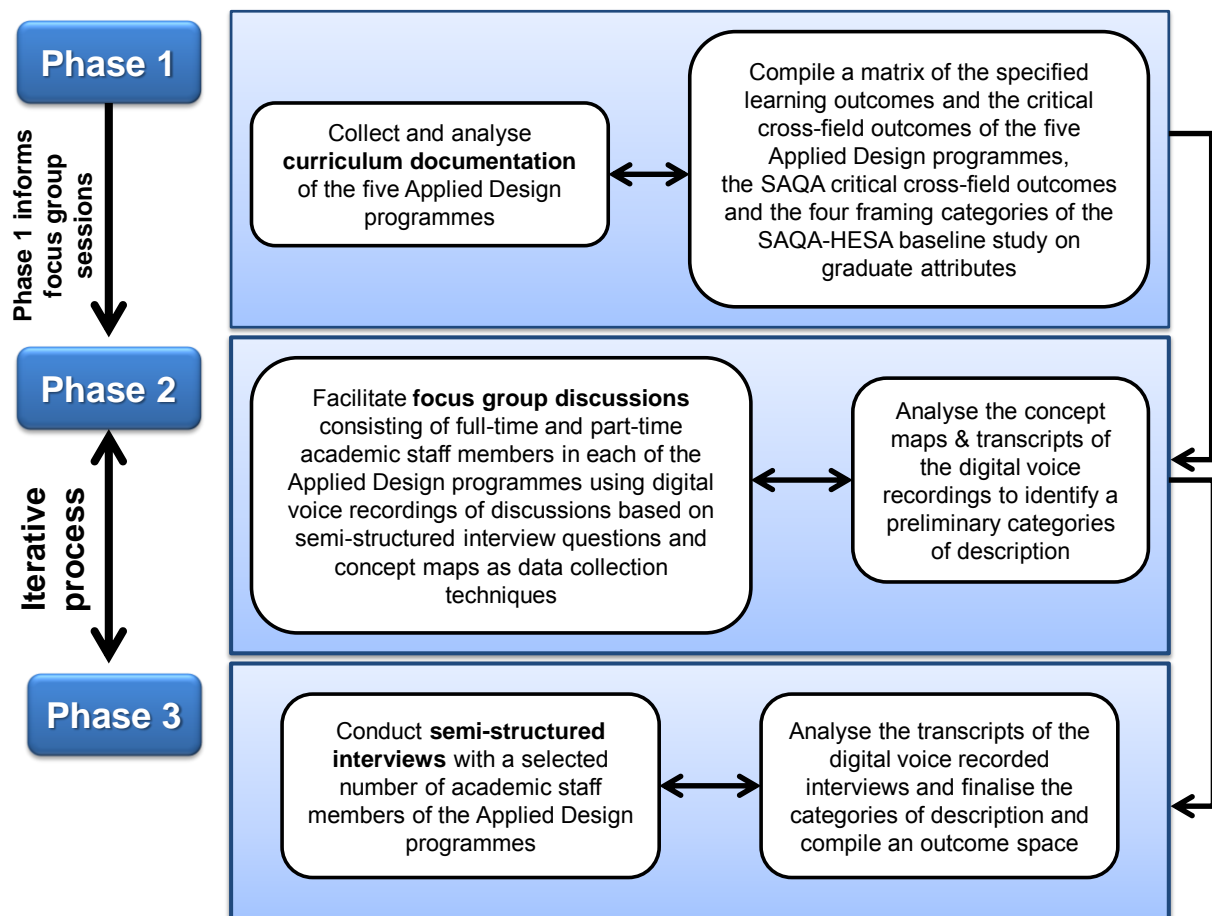


Figure 3.7: Research design of phenomenographic study

3.9.4.2. Second phase of data collection and analysis

The analysis of the curriculum data flowed into the second phase of data collection and analysis to inform the semi-structured interview questions and process used for two focus group discussions of approximately 6 hours each per Applied Design programme. These focus group discussions were attended by both full-time and part-time academic staff members of each of the Applied Design programmes and on average about 20 academic staff members attended each session (see **Appendix E** for schedule of the focus group sessions). Academic staff members were requested, in preparation for each first focus group session to reflect individually on the following three interrelated aspects of an engaged curriculum: “knowing”, “doing” and “being” (Barnett & Coate, 2005) by providing a short description of “what” and “how” each of these aspects were incorporated in the subjects they were teaching during 2012. A template (see **Appendix F**) and a hand-out (see **Appendix G**) were provided for this purpose. Academic staff members used this reflective exercise to

engage in small group discussions during the first focus group session. **Table 3.1** lists the information and activities related to each of the three interrelated aspects of an engaged curriculum provided in the template and hand-out which were distributed to academic staff members prior to the first focus group discussion.

Table 3.1: Reflective activity based on interrelated aspects of an engaged curriculum

Domains of higher learning of an engaged curriculum		
Knowing	Doing	Being
Knowledge is central to the purpose of higher education and a key aspect of a HE curriculum. Yet, knowledge is not fixed or static, but an active, dynamic component – therefore not merely a list of essential bits of things to know or a list of topics. The act of “knowing” calls for engagement (developing a personal relationship with the body of knowledge) which shapes the identity of the person who engages with the body of knowledge relevant to a specific field of study.	Doing relates to action, skill and performance, but in a wider context than merely mechanistic performance of a task/procedure (manually how to do things). It is not limited to the “doing” of a task, as it also has to do with an intellectual or cognitive “doing”. This implies that the person doing the task/performing the action has the understanding (know-how and know-why) to make meaning of the “doing” within a specific context.	Students cannot merely be “assemblies of competencies or reservoirs of knowledge” (Barnett & Coate, 2005:109), which implies that although knowledge and skills are important elements of an engaged curriculum, these two domains of learning cannot adequately prepare students for complex practice in a changing world, without acknowledging the importance of “being” or “becoming”. It is therefore important to also focus on capabilities, attributes and qualities of individuals in relation to complex practice, since these aspects are enabling mechanisms in a HE curriculum.
Reflective activity		
List the key aspects/elements/components related to the body of knowledge of the subject(s) you teach. Remember to consider scope, depth and complexity.	List the actions, skills and/or performance required in the subject(s) you teach. Remember to consider aspects of praxis and context.	What are the graduate capabilities, attributes and/or qualities that you would expect of a graduate who have successfully completed a qualification in your field of study?

During the **first focus group discussion** academics engaged in three interrelated activities:

- Using the reflective activity of the three key aspects of an engaged curriculum of “knowing”, “doing” and “being” (Barnett & Coate, 2005), they shared their conceptions and orientations regarding these three aspects with their colleagues.
- Using a “concept” or visual map (Novak & Cañas, 2008) they illustrated how these three key aspects of an engaged curriculum of knowing, doing and being were manifested in the subjects they were teaching in the undergraduate Applied Design programme during 2012. These concept or visual maps were used as graphical tools for organising academics’ conceptions and orientations regarding the three

interrelated aspects of knowing, doing and being. They were presented visually by the academic staff members participating in the smaller group discussion (ranging from 2-8 academics per group, but on average 4 academics per group), using large sheets of white paper and coloured markers. The concept maps contained the key concepts which consisted of the interrelated aspects of knowing or knowledge, doing or skills and being or attributes/qualities of complex practice in each field of specialisation. These key concepts were presented in circles or boxes of any particular format, and the relationships between these were indicated by a connecting line. If linking words or linking phrases were used in the concept maps, they usually specified the relationship between the concepts. For the purpose of this small group activity, we defined “concepts”, as suggested by Novak and Cañas (2008:1), as “records of events or objects, designated by a label”. The label was in most cases a subject topic (e.g. design process, materials, technology, etc.) with cross links to other concepts to form a network of concepts related to a broader subject area of the curriculum. **(See examples of concept maps produced by academics in these focus group sessions in Chapter 4).**

- These concept maps were then presented by one or more members of the small group to the rest of the academic staff who attended a particular focus group session. Sufficient time was allowed to discuss the concept or visual maps and to clarify issues that emerged from the concept or visual maps.

These focus group sessions were digitally voice recorded with written permission from the Dean of the Faculty of Informatics and Design and verbal permission from the participants in the focus group session. An administrative assistant from the Office of the Teaching and Learning Coordinator of the faculty also took notes electronically during each session and all images (e.g. “concept” maps or other visual representations of small group discussions) were photographed at the end of each focus group session. Voice recordings were transcribed verbatim, focusing specifically on the first and the third small group activities during each focus group session. The feedback obtained from academics at the end of each focus group session by means of a written evaluation form clearly indicated that they were comfortable and at ease with the phenomenographic data collection process.

The **second focus group session** often took place a few days or even weeks after the first focus group discussion (see **Appendix E** for schedule of the focus group sessions) and focused more pertinently on feedback obtained from stakeholders (industry representatives who might have been present during the first focus group session, alumni, students and staff). The focus of these sessions was to confirm the data collected by means of the “concept” or visual mapping exercise during the first focus group session, and to allow more

time for discussion on issues of concern to be addressed during the curriculum review and HEQSF alignment process of these Applied Design programmes. Once again, these discussions were voice recorded, but these recordings were not be transcribed, mainly to keep the amount of data collected for the purpose of this phenomenographic study more manageable. The photographs of the concept maps, transcripts of voice recordings of the first focus group discussions as well as the actual voice recordings of the second focus group discussions of each of the five Applied Design programmes that were included in this phenomenographic study were analysed in detail to identify the preliminary categories of description.

3.9.4.3. Third phase of data collection and analysis

Based on an increased understanding of the diverse perspectives of the phenomenon gained from the second phase of the data collection process, the researcher identified, using purposive sampling, a small group of academic staff members for semi-structured personal interviews. These individuals were carefully selected to ensure diversity in terms of the qualitatively different ways of experiencing graduate attributes in undergraduate Applied Design programmes at the Cape Peninsula University of Technology. It is important to note that diversity here refers to the diversity of experiences among the interviewees as a group of the particular phenomenon, and not the diversity of an individual staff member's experiences. The following criteria were taken into account during this selection process:

- The number of years of teaching experience in design education at higher education level;
- Prior involvement in curriculum development and review activities at higher education level in Applied Design programmes;
- The availability of the interviewee during the period when this study was conducted at the site of investigation.

Interviewees were approached by the researcher via electronic mail and the interview date, and time was determined at a time and venue convenient to both the researcher and interviewee. Interviewees were requested to grant informed consent by signing the consent form designed for this purpose (see **Appendix D**) and a copy of the interview sheet was handed to the interviewee a few days prior to the actual interview. These interviews were digitally voice recorded and verbatim transcripts were typed by a professional transcriber for data analysis. These transcriptions formed part of the larger "pool of meaning" with regard to the phenomenon (Cope, 2004:6) and the researcher critically analysed the data collectively to uncover the richness of the diverse conceptions and experiences that interviewees have revealed about the phenomenon. From this analysis, the final set of descriptions of

categories was determined, which ultimately formed the outcome space of this phenomenographic study. A total of eight academic staff members were interviewed using a set of interview questions (see **Appendix C** and **Table 3.2**) to explore their conceptions of graduate attributes and their orientations towards the development of graduate attributes in the subjects they were teaching during 2012.

Table 3.2: Interview questions for semi-structured face-to-face interviews

“what” of graduate attributes	Generally speaking, graduate attributes are often defined as the qualities, skills and understandings (knowledge) a university community agrees its students should develop during their time with the institution. What is your conception or understanding of graduate attributes in Applied Design programmes?
	Which graduate attributes should be developed in the subject(s) you teach?
	Which of these graduate attributes are context-dependent and which of them are “generic” or context-independent in your opinion?
“how” of graduate attributes	How do you personally encourage the development of graduate attributes as a HE teacher?
	What are the current constraints in terms of teaching graduate attributes in this programme(s) and in the subject(s) you teach?
	What are the current constraints in terms of assessing graduate attributes in this programme(s) and in the subject(s) you teach?

The stages of data collection (see **Figure 3.7**) link to the different stages of data analysis illustrated in **Figure 3.8**. The data analysis process adopted for this study was based on discursive phenomenographic studies described in literature (see **Paragraph 3.8.3.3**) and consisted of the following seven stages:

- **Stage 1:** The different sets of data collected from phases 1-3 of the data collection process described earlier in this chapter were organised into logical sequence.
- **Stage 2:** The photographs of the “concept” or visual maps were analysed and the transcribed focus group discussions and individual interviews as a “pool” of data were carefully studied and analysed. In analysing the concept or visual maps as well as the transcriptions of both the focus group discussions and the individual interviews, the data sets were treated as a collective pool of meaning. The data sets were coded for ease of identification and recordkeeping purposes only. It was only necessary to link the different data sets to the actual Applied Design programme and not to identify that the actual participant was.
- **Stage 3:** The data sets were compiled into two main sub-sets or “piles” of data in terms of both the academics’ conceptions (what) and their orientations (how) of embedding graduate attributes in the curriculum. Each sub-set of data consisted of

the three interrelated aspects of knowing, doing and being (See **Appendix H** & **Appendix I** as examples).

- **Stage 4:** The researcher analysed each of these two sub-sets of data consisting of the “what” and the “how” collectively as a pool of meaning and experiences of academic staff members. At this stage of the data analysis process the focus was only on identifying broad themes.
- **Stage 5:** During this stage of the data analysis process, the researcher paid more attention to similarities and differences between the different data sets through a process of comparing and contrasting of themes. The researcher also identified some quotations from the focus group discussions and interviews that best described each of the broad themes that emerged from the data as a collective pool of meaning.
- **Stage 6:** Categories of description emerged after several iterations in terms of stages 3, 4 and 5 consisting of the sorting and re-sorting the data sets as well as redefining the broad themes. During this stage of the data analysis process the part-whole relationships in phenomenography of contrast, generalisation, separation and fusion as defined by Matron and Tzu (2004) in Åkerlind (2008:637) were taken into account (see **Paragraph 8.3.4.1**).
- **Stage 7:** The final stage of data analysis process consisted of the finalisation of the categories of description and the compilation of the outcome space.

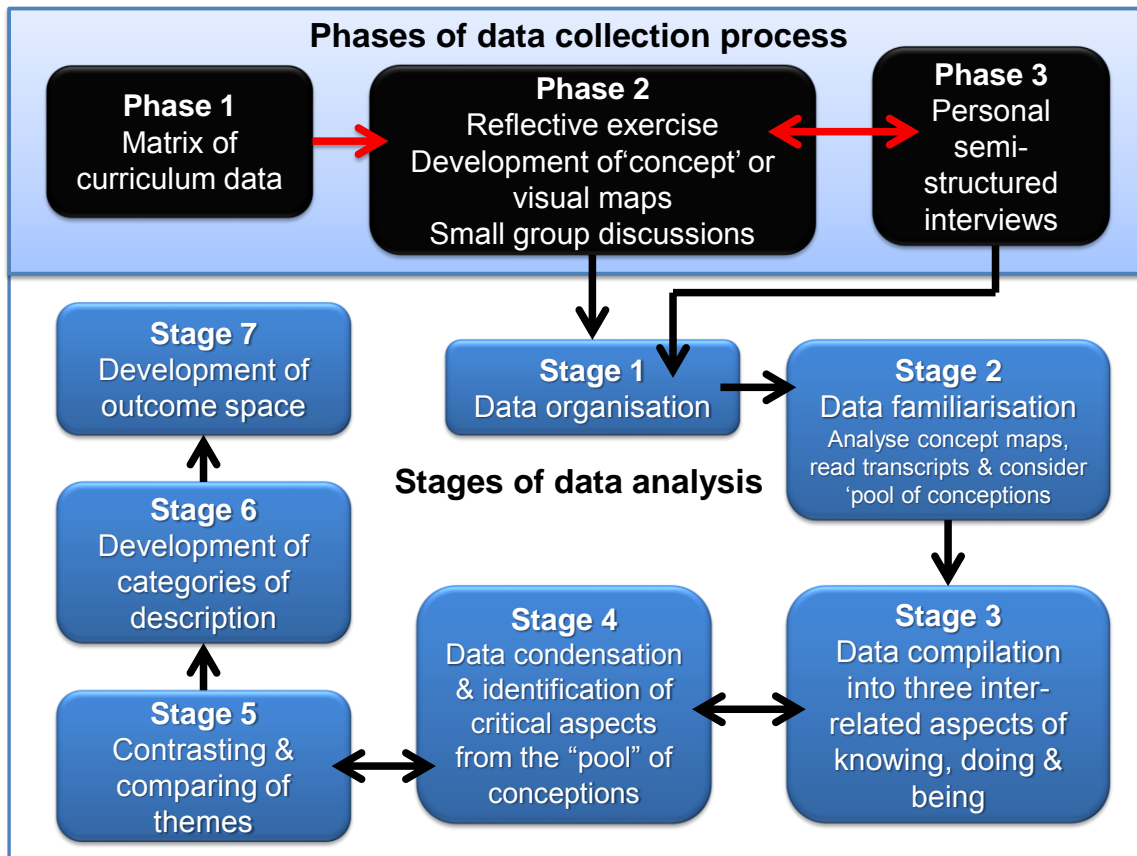


Figure 3.8: Different stages of data analysis used in this study

3.9.5. Defining the categories of description and developing the outcome space

In this phenomenographic study, categories of description were identified after the transcripts were carefully studied and quotations were identified from transcripts to show how each category differs from the other categories of description. The complex and multi-faceted nature of the phenomenon under investigation compelled the researcher to conduct a thorough analysis of the data. The data showed that academic staff members may experience different facets of graduate attributes in more or less complex ways and that an academic staff member may even express different ways of experiencing graduate attributes in the same interview. For this reason it was necessary to consider the phenomenon as experienced by academic staff members at the individual quote level. In order to trace the quotations back to the original transcripts, the individual quotations were carefully labelled and electronically recorded, yet no attempt was made by the researcher to disclose the identity of any of the participants in this process. The categories of description were constituted as a relationship between the researcher and the data and the researcher's scholarly knowledge of both the fields of study and the topic under investigation formed an

important part of this relationship. The differences between the categories of description were based on the different structures of awareness, and in turn based on the experiences of the academic staff members, which were used to define each category of description. As indicated by Cope (2000:83) it is possible to show logically that one structure of awareness is either more or less complex than another, by comparing the number of aspects of the phenomenon making up the internal horizon, the strength of the relationships between the aspects, and the nature of the boundary of the external horizon. The researcher engaged with the data analysis process as a faithful and honest witness of the accounts in the data and with a high degree of openness to possible meanings. Issues of validity, reliability and trustworthiness described earlier in this chapter (see Paragraph 7.3.6) were carefully considered. In terms of the three phases of communicative validity (Sandberg, 1994 in Mann *et al.*, 2007:20) the following were considered:

- For the first phase of communicative validity within the interviews, the researcher informed the interviewees prior to the interview of the purpose of the study. The researcher even disclosed the interview questions to them in an attempt to put the interviewees at ease, emphasising that there are no right or wrong answers to the questions and that no personal judgement would be made about what was discussed. Interviewees provided their informed consent prior to the interview by signing the prescribed consent form. Prior to each focus group session participants were given sufficient information to put them at ease regarding the phenomenographic data collection process, and to encourage them to participate in a relaxed atmosphere.
- For the second phase of communicative validity, the data collected from both the second and third phases of the data collection process for this study was treated collectively as a “pool” of conceptions. This focus was maintained by looking at the similarities and differences of “themes” that emerged from the data.
- The third phase of communicative validity involved feedback obtained from other researchers and professionals. This aspect was addressed by allowing academics in the second focus group session to obtain clarity on issues of concern.

In terms of trustworthiness of the data collection and analysis process, the researcher took into account that developing trustworthiness is essential to build relationships between the object of the study (and the situation it is in), the context of the researcher and the research process and its outcomes (including its tentative impact). These relationships are at the heart of the development of trustworthiness as indicated by Collier-Reed *et al.* (2009) and imply that principles of trustworthiness such as credibility and dependability had to be considered during the interview process, preparation and analysis of transcriptions and the development of categories of description.

3.10 Conclusion

In summary, Pang (2003:156) indicates that phenomenography is an ever changing, growing field of specialisation. As such the object of research is the qualitatively different ways in which individuals are aware of the world, and the ways in which they experience various phenomena and situations around them. Phenomenographic studies use open, explorative data collection and interpretive analysis techniques to produce an outcome space which depicts not only the categories of description of the phenomenon under investigation, but also the relationship between the categories. The outcome space is “a robust constituted set of logically related categories comprising distinct groupings of aspects of the phenomenon” (Reed, 2006:9) which may be presented as a table, image or diagram and serves the purpose of depicting how categories relate to one another.

In this chapter, the researcher provided a detailed overview of phenomenography as a research approach, as well as of how this approach was used in this particular study by taking ontological, epistemological and methodological aspects into account. The purpose of the chapter was to show how the researcher addressed the research questions by means of a particular research approach and how the data was collected and analysed for this purpose. In the next chapter the researcher will describe the data results from this phenomenographic study in more detail and present the findings in the form of an outcome space. In the final chapter of this dissertation conclusions will be drawn from these findings and implications will be considered in terms of an appropriate framework and implementation strategy for graduate attributes in Applied Design programmes at the Cape Peninsula University of Technology.

Chapter 4

Phenomenographic analysis and findings

The activities encompassed under the umbrella of design are in flux, and constantly expanding. While architecture and engineering have long professional histories, many of the design fields that dominated the 20th century, such as industrial design, visual communications design, interior design and fashion design, are of more recent origin, were gradually professionalised in the wake of the industrial revolution, and became the subject of academic research only in the last decades of the 20th century.

If the industrial revolution gave birth to design disciplines that were to play a prominent role in the 20th century, the social, cultural and technological transformations of the late 20th century equally have spawned new contexts and practices of design.

Stewart (2011:15)

4.1. Introduction

This chapter describes the conceptions and orientations of a group of academic staff members teaching Applied Design programmes at a University of Technology, expressed in terms of their experiences of embedding graduate attributes in their curricula. The outcomes of a phenomenographic analysis is an “outcome space” (Marton, 2000:105) consisting of a finite set of interrelated categories of description that explains the different ways in which individuals experience phenomena in the world. Collectively, the categories of description represent the phenomenon of embedding graduate attributes in Applied Design programmes within a particular context, i.e. the Faculty of Informatics and Design at the Cape Peninsula University of Technology during 2012. These categories of description are the end results of the data collection and analysis process (see **Paragraph 3.9.4 of Chapter 3**) reported in the previous chapter.

4.2. Presentation of the findings

Barnett and Coate (2005:3) distinguish between “curriculum-as-designed” and “curriculum-in-action”, two concepts that according to these authors arise from a sense that “a curriculum is as much an achievement as it is a task”. “Curriculum-as-designed” could be associated with educational terms such as: outcomes, objectives and alignment, which could even suggest that there is “an engineering sense of curriculum”. In the “curriculum-in-action”, on the other hand, the curriculum structure is seen as “a flexible structure” with a sense of open-endedness which results from “genuine human engagements” with the different conceptual and contextual influences impacting on the curriculum (Barnett & Coate, 2005:49).

In this chapter both the curriculum-in-design and the curriculum-in-action will be described, although the primary concern is the curriculum-in-action. The findings in this chapter relate to the different phases of the data collection process as described in **Paragraph 3.9.4** and **Figure 3.8** of **Chapter 3**.

The findings are presented in **four interrelated parts**, forming a coherent structure of awareness of the phenomenon, namely:

Part 1: Curriculum-in-design: The curriculum-in-design is presented as a matrix of the specified learning outcomes and the critical cross-field outcomes of the five Applied Design programmes, in relation to the SAQA critical cross-field outcomes and the four framing categories of the SAQA-HESA baseline study on graduate attributes. For the purpose of this analysis, the official SAQA registered qualification information is used to provide information on the exit level outcomes, specified outcomes and the SAQA critical cross-field outcomes of the five Applied Design programmes under investigation. The curriculum-in-design as presented in **Table 4.1** in this chapter informed and enhanced the researcher's understanding of the curriculum-in-action, which forms the second part of the findings presented in this chapter.

Part 2: Curriculum-in-action: The curriculum-in-action is seen as dynamic and in a state of flux, and is mostly a site of contested interpretations (Barnett & Coate, 2005:51). By approaching curriculum from this point of view it is acknowledged that we live in a fluid age and that higher education curricula could therefore hardly be exempted from such fluidity. It implies that there has to be a sense of interconnectedness among the different aspects and a sensitivity to the inner complexity of any major elements constituting the curriculum-in-action (Barnett & Coate, 2005:51,56). **Figure 4.1** illustrates the curriculum-in-action representing the interrelatedness and flow of knowledge (knowing), skills (doing) and generic capabilities and attributes (being) among different aspects of these Applied Design programmes. The curriculum-in-action presented in **Figure 4.1** and the description of each of the segments and sub-segments that constitute the dynamic and interrelated flow of knowing, doing and being informed the researcher's understanding of the conceptions and orientations of academic staff members in terms of embedding graduate attributes in their curricula. These conceptions and orientations of academic staff members are discussed in the third part of the findings presented in this chapter.

Part 3: Categories of description of both the conceptions (“what”) and the orientations (“how”) of embedding graduate attributes in the curriculum: The third part of this chapter is a detailed account of the categories of description, explaining the qualitatively different ways in which academic staff members of Applied Design programmes at a University of Technology experience the phenomenon described as their understanding or conceptions of, as well as their orientations to, embedding graduate attributes in the curriculum. Each category of description is discussed in detail to provide a reasonable reflection of the participants’ responses of both the focus group discussions and the semi-structured personal interviews. These descriptions are supported either by visual representations consisting of photographs or hand drawn concept maps, or by electronically generated concept maps that participants developed during or immediately after the focus group (workshop) discussions to enhance their understanding of their curricula. Quotations and extractions from interviews from participants from the focus group (workshop) discussions and the personal semi-structured interviews on both the “what” and the “how” of graduate attributes in Applied Design curricula will be used to represent the categories of description comprehensively and fairly. The description of each category is presented in the following way:

- The **label** of the category.
- The **diagrammatic representation** of the subject-object relationship in the beginning of each category of description (Bruce, 2003:5; Smith, 2010:140). This diagrammatic representation illustrates the relationship of the knowing, doing and being elements related to each category.
- A **concise description of each category** explaining both the structural and referential aspects associated with a particular category.
- Supporting evidence is provided in the form of a **collection of illustrative quotations** that have been carefully selected to present the qualitatively different ways that academic staff members experience, conceptualise, perceive and understand various aspects of the phenomenon being studied. To provide clarity and to ensure that quotations read fluently, the researcher has occasionally left out certain words in the academics’ statements, replacing these by an ellipsis (three dots) or inserting words in square brackets. The researcher has taken great care in this regard to ensure that the original meaning of the statement is not compromised in any way, and that the credibility of the data analysis process is not negatively affected. Since the purpose of a phenomenographic research is to treat the set of data sources as a pool of meaning, the identity of the individuals is not revealed in presenting the data. For the purpose of this research project, reference is **only** made to the field of study, or, if necessary, to the subject area in which the academic staff member taught

during 2012 when the data was collected – this is indicated in square brackets at the end of the direct quotation. The third part, constituting both the categories of description of the conceptions and the orientations of academics in terms of embedding graduate attributes in the curriculum, informs the outcome space, constituting the fourth part of the findings presented in this chapter.

Part 4: Outcome space: The fourth part, being the outcome space, is “a robust constituted set of logically related categories comprising distinct groupings of aspects of the phenomenon” (Reed, 2006:9), which contains the categories of description of the referential and structural aspects of both the academic staff members’ conceptions of graduate attributes in the curriculum (“what”) and academic staff members’ orientation towards graduate attributes in the curriculum (“how”). Each category of description encompasses two interrelated parts:

- A **referential aspect** in which the meaning of the category is captured. This is visible in the title of the categories and the description that accompanies each category. The referential aspect is intimately intertwined with the structural aspect of the experience and focuses on the **meaning or the “what” assigned to the phenomenon** through the relationship between the internal and external horizons.
- A **structural aspect** that describes the **“how” of the phenomenon**, in other words: **how the relevant parts of the phenomenon are experienced by the participants** (subjects), and how they are related to each other. The structural aspect is defined by the discernment of the whole from the context on the one hand and the discernment of the parts and their relationship within the whole on the other (Svensson, 1984 in Marton & Booth, 1997:87).

Each of the four parts constituting the findings presented in this chapter is described in more detail below.

4.3. Curriculum-in-design

With reference to **Paragraph 2.6.2.1.** and **Paragraph 3.9.2.**, this matrix (see **Table 4.1**) presents a concise version of the comparative analysis of the specified outcomes (subject-specific knowledge and skills) and critical cross-field outcomes (generic graduate attributes) from the SAQA registered qualifications of the five Applied Design programmes offered at the Cape Peninsula University of Technology in relation to the four framing categories of graduate attributes defined in the SAQA-HESA baseline study. A detailed description of this table is provided in **Appendix B.**

Table 4.1: Comparative analysis of the learning outcomes (subject-specific and critical cross-field) of the SAQA registered qualifications and the four framing categories of graduate attributes defined in the SAQA-HESA baseline study

No.	SAQA critical cross-field outcomes	Four framing categories of SAQA-HESA baseline study on graduate attributes			
		Knowledge and intellectual ability	Workplace skills and applied knowledge	Basic skills and understandings	Interactive and personal skills
		Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Do graduates display the necessary know-how to meet workplace expectations?	Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
1	Identify and solve problems in which responses demonstrate that responsible decisions using critical and creative thinking have been made	G G J	F F F F G J J J J J I I	F G S	
2	Work effectively with others as a member of a team, group, organisation, community	F	G J		F
3	Organise and manage oneself and one's activities responsibly and effectively				F F G
4	Collect, analyse, organise and critically evaluate information	F G G	G	F G J	F G
5	Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation	G G G G G G J	G G	F G	G

No.	SAQA critical cross-field outcomes	Four framing categories of SAQA-HESA baseline study on graduate attributes			
		Knowledge and intellectual ability	Workplace skills and applied knowledge	Basic skills and understandings	Interactive and personal skills
6	Use science and technology effectively and critically, showing responsibility towards the environment and health of others	J	F F F S G J J J I	F J I	
7	Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation	F S	G G I I		G
8	Reflecting on and exploring a variety of strategies to learn more effectively	G			
9	Participating as responsible citizens in the life of local, national and global communities				G
10	Being culturally and aesthetically sensitive across range of social contexts		G	J	F
11	Exploring education and career opportunities		G		I
12	Developing entrepreneurial opportunities	S	F G G G	I	J I

Legend depicting use of symbols in Table 4.1

Fashion Design	F	Surface Design	S	Graphic Design	G	Jewellery Design	J	Industrial Design	I
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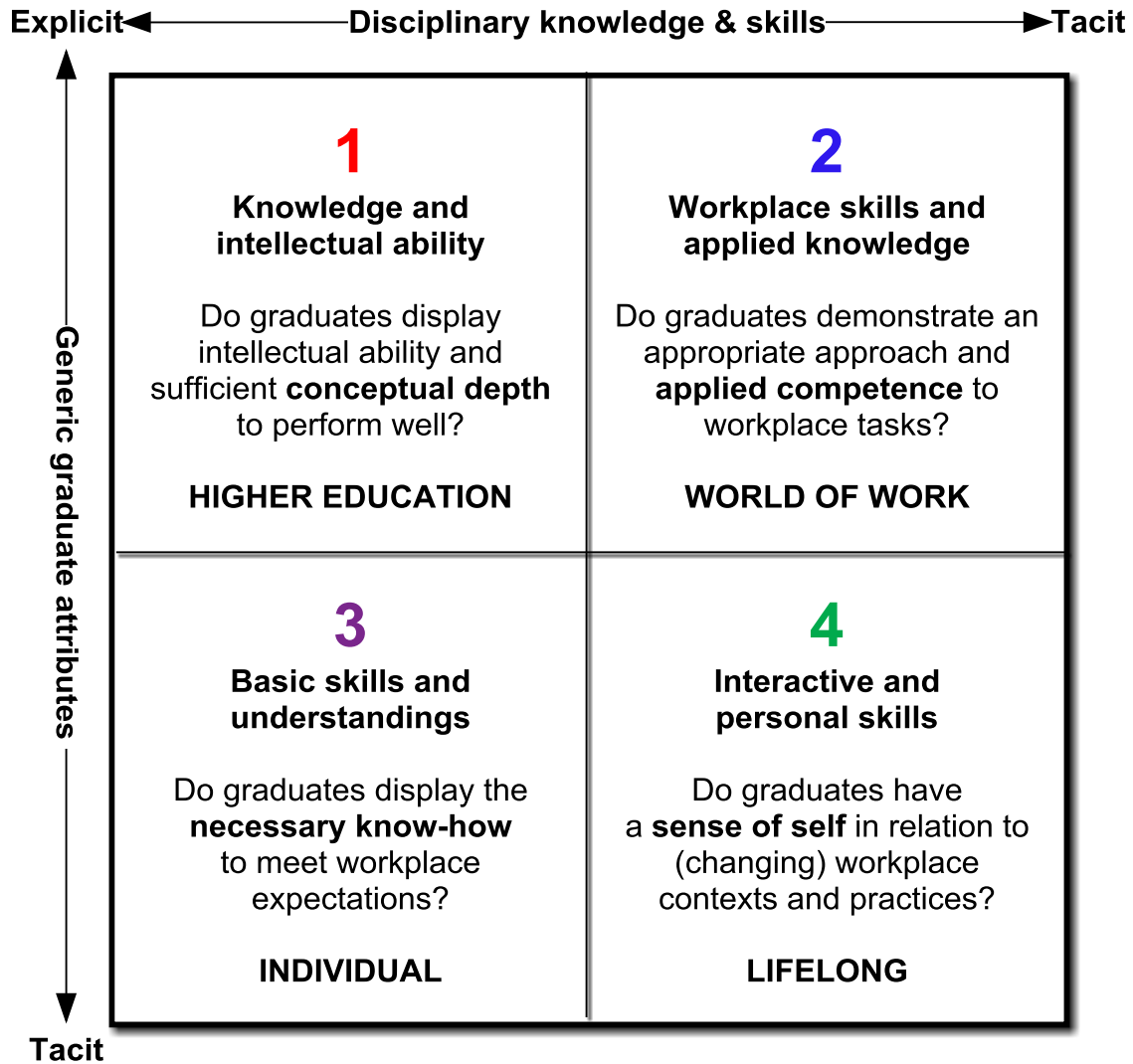


Figure 4.1: Four quadrants model of graduate attributes adapted from SAQA-HESA baseline study on graduate attributes of Griesel and Parker (2009)

Adapting the concept of the Johari window model ⁸(Mind Tools, 2013) to establish four quadrants which relate to the framing categories of the SAQA-HESA baseline study on graduate attributes (see **Figure 4.1**), and using the data presented in **Table 4.1** (and **Appendix B**), the following conclusions can be made:

Quadrant 1 - Knowledge and intellectual ability: This quadrant is characterised by the recontextualisation of disciplinary knowledge that will form the fundamental principles applicable to these applied design programmes. Shay (2012:12) indicates that in curricula with theoretical knowledge, the logic of the curriculum is that of the discipline. Knowledge in

⁸ The Johari window model was devised by American psychologists Joseph Luft and Harry Ingham in 1955 and was first published in the Proceedings of the Western Training Laboratory in Group Development by the University of California, Los Angeles, in 1955. (Mind Tools, 2013).

this quadrant is codified and explicit in nature, with emphasis on the use of prescribed textbooks and other publications (e.g. glossaries, dictionaries, journal articles, etc.) in teaching. In contrast to what would normally be expected from higher education curricula, a limited number of the specified learning outcomes and the critical-cross field outcomes of the programmes relate to this quadrant, based on the data presented in **Table 4.1**. In the case of Graphic Design strong emphasis is placed on aspects of communication theory and design in this programme. Hence six of the outcomes of this programme are linked to SAQA critical cross-field outcome no. 5 [communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation]:

- Select and arrange the forms of words in accordance with typographic principles to give optimal expression and clarity to the content.
- Draw or otherwise indicate the original pictorial and/or symbolic images required by the concept that will elicit the desired response.
- Combine word and image into an accurate presentation of the final visual communication.
- Test the effectiveness of the presentation for the target group.
- Refine the design according to the feedback received.
- Specify production components of the visual communication in accordance with the design requirements and media specifications.

However, these specified outcomes from the SAQA registered qualification of the Graphic Design programme indicate that the knowledge is more “applied” and “procedural” in nature, thus divorced from its disciplinary roots with over-emphasis on “the practice-oriented ‘know-how’ necessary for professional tasks, without paying sufficient attention to the disciplinary core, resulting in the knowledge base being weak on ‘know-why’ and professional identity” (Winberg, Engel-Hills, Jacobs & Garraway, 2013:111).

Quadrant 2 - Workplace skills and applied knowledge: This quadrant is characterised by procedural knowledge (Gamble, 2006) with emphasis on the development of applied competence. The development of applied competence does not only relate to students’ ability to put it into practice within controlled and defined environments, but also to adapt and re-contextualise their learning to function successfully in complex and unpredictable circumstances (SAQA, 2000:17). It is therefore not surprising to find that a large number of specified and critical cross-field outcomes of these Applied Design programmes are positioned within this quadrant, with a strong emphasis on the ability of students to identify and solve problems using critical and creative thinking, as well as applying science and technology effectively.

Quadrant 3 - Basic skills and understandings: Despite the fact that it is essential for graduates of these Applied Design programmes to display basic skills and understandings such as the ability to find and access information, written communication skills, the ability to use information, ability to handle large amounts of information, numeracy or quantitative literacy, computer literacy, proficiency in English and others (Griesel & Parker, 2009:9) to function effectively as higher education students as well as in the workplace, it is disturbing to find that only a small number of specified learning outcomes and critical cross-field outcomes of these Applied Design programmes relate to the said basic skills (see **Table 4.1**). This finding relates to the findings of Barrie's research, stating that some academics view these attributes as largely irrelevant and a precursor to learning of disciplinary knowledge at university (Barrie, 2006:225).

Quadrant 4 - Interactive and personal skills: The importance of interactive and personal skills such as openness and flexibility, negotiating and mediating skills, teambuilding and the appreciation of different cultural contexts (Griesel & Parker, 2009:15) cannot be underestimated. Dall'Alba (2009:55) indicates that while processes of becoming or the development of a sense of self may often go unacknowledged in professional education, the expectation that graduates should transform from students to engineers, lawyers, or in this case, designers, is a reality. Although a number of specified learning outcomes and critical cross-field outcomes of these Applied Design programmes relate to this quadrant (see **Table 4.1**), the outcome statements as such are relatively vague, for example:

- **Fashion Design and Graphic Design:** Organising and managing oneself and one's activities responsibly and effectively is addressed throughout the course.
- **Fashion Design:** Developing personal direction while being culturally and aesthetically sensitive in order to interact with people both in the workplace and socially.
- **Industrial Design:** Create Designer's CV and portfolio.

In my opinion, the elusiveness of these outcome statements in the official curriculum documentation hampers the development of a strong sense of professional identity in these programmes. Another constraining factor is the fact that in some of these Applied Design programmes (e.g. Surface Design) the critical cross-field outcomes are not contextualised to meet the need of the programme and are simply copied from the original list provided by SAQA when these programmes were developed in the late 1990s.

4.4. Curriculum-in-action

During the various focus-group discussions of the Applied Design programmes (Fashion, Surface, Industrial, Graphic and Jewellery Design) held from July to November 2012 (see **Appendix E**), the academic staff members who participated in these discussions produced concept maps depicting the various aspects of the broad knowledge or subject areas (e.g. design, materials, techniques, business and management as well as theory and history) that inform the curriculum-in-action of the relevant Applied Design programmes. These concept maps epitomise the curriculum-in-action and are based on a dynamic interaction between the various broad knowledge and subject areas as illustrated in **Figure 4.2**. The curriculum-in-action consists of six interrelated segments that create a dynamic, interactive flow of knowledge (knowing), skills (doing) and generic capabilities and attributes (being) which constitute both the learning and design processes within these programmes.

These **six interrelated segments** (see **Figure 4.2**) of the Applied Design curricula as a whole are: contextual influences and aspects; fundamental principles, theories and elements underpinning the design activity; sketching, drawing and problem solving; materials; techniques, equipment, tools and technology and finally, the design products and solutions that are developed as a result of the design process. A concise description of each of these segments and their sub-divisions are given below.

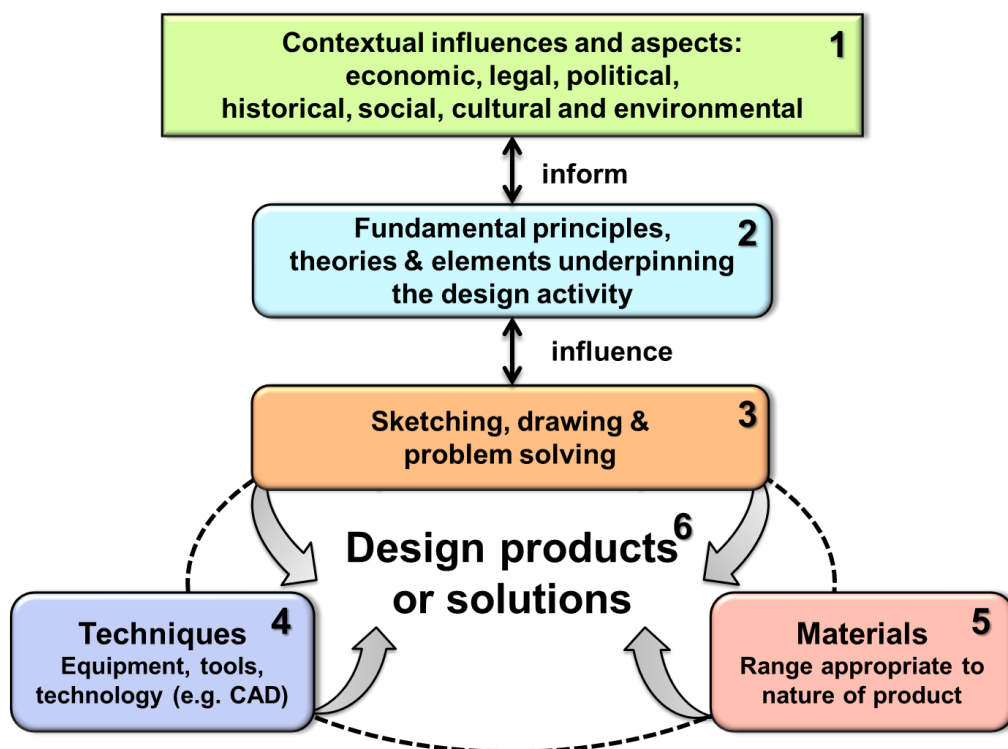


Figure 4.2: A concept map of the various broad knowledge or subject areas depicting the curriculum-in-action of the Applied Design programmes

4.4.1. Contextual influences and aspects

The range of contextual influences and aspects influencing the design process that forms the heart of any design programme play an important role to ensure that designers are able to understand and articulate the wider global context in which the products, services and systems they design will exist (UK Design Council, 2010:16). To this end, economic political and legal influences inform the business and management decisions that designers will make, while the historic, social, cultural and environmental factors significantly affect the end product or design solution.

Economic, political and legal influences impacting on these Applied Design programmes are the following:

- **Legal requirements** such as labour, contract and tax legislation and their implications.
- **Financial aspects** including budgeting, costing and the interpretation of various financial statements.
- **Business-related aspects** including the impact of changing business environments (e.g. macro, meso, micro), opportunities, roles and operations (e.g. general management, sourcing and purchasing, production, branding and marketing, public relations and customer care, human resources, administration and financial) on business practices.
- **Management and leadership-related aspects** such as general management (e.g. planning, organising, activating, leading, directing and controlling), human resources, team building, conflict resolution, negotiation skills, strategic management and project management.

There are slight variations in terms of the different aspects covered in each of the Applied Design programmes, but the core components are represented in the concept map (See [Figure 4.3](#)) that was created by academic staff members who taught subjects such as Business Studies (Fashion Design, Industrial Design, Jewellery Design), Professional Practice (Graphic Design), Surface & Design Studies (Surface Design) during 2012. This particular concept map was developed during a focus group session of Fashion Design in August 2012.

Although these various aspects relate to different “pure” and “applied” disciplines (Winberg, *et al.*, 2013:110) such as Law, Economics, Accounting, Management Sciences & Business Sciences, they appear in these design programmes as re-contextualised components to meet the purpose of the field of study, needs of the occupation/profession and pedagogical process as described in **Paragraph 2.4.1.1.3.** in **Chapter 2** of this dissertation. Generic

graduate attributes such as literacy, communication, numeracy, time management and presentation skills also form part of contextual elements in the curriculum, although these are not regarded as integral parts of the curricula in question.

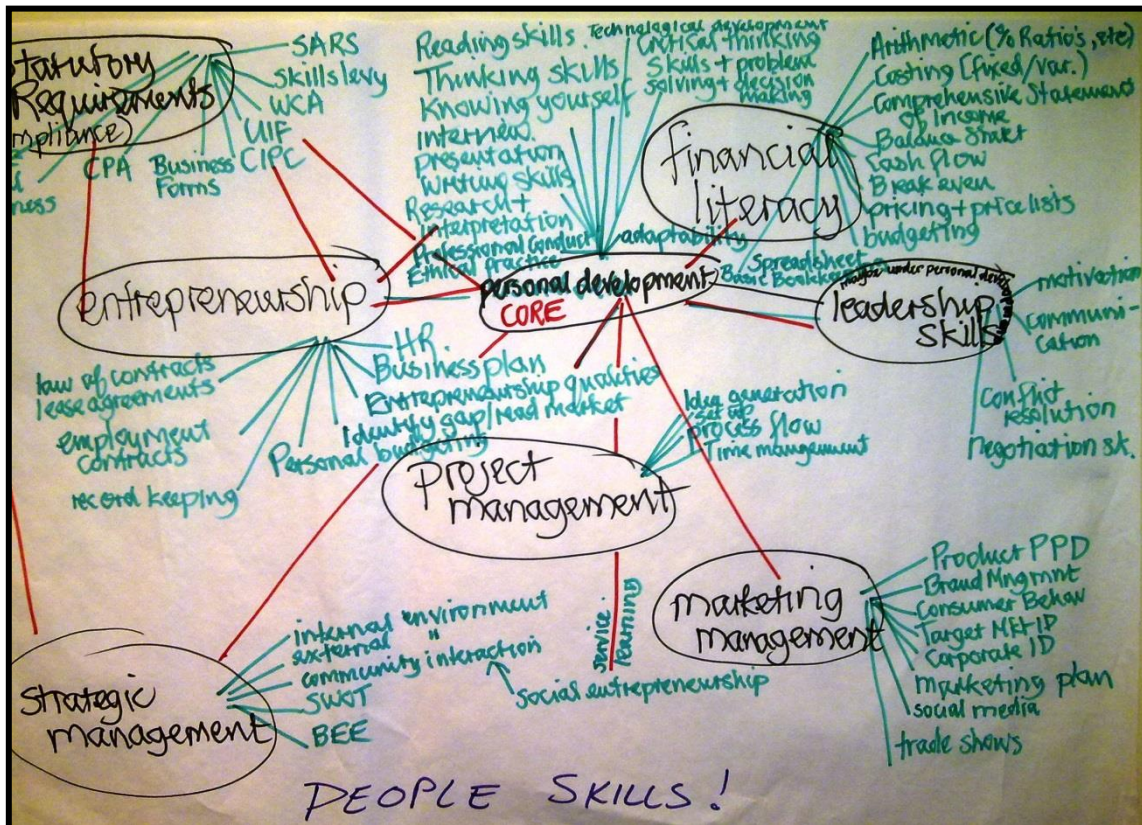


Figure 4.3: Concept map of business, management, financial and legal components in Applied Design programmes produced by academic staff during a focus-group session

Historical, social, cultural and environmental influences and aspects include a comprehensive overview of the different periods in history relating to art, design, architecture, textiles and fashion (clothing) from antiquity to the 21st century. The emphasis is on understanding the impact of religion, culture and socio-political factors on art and design throughout the ages by acknowledging the geographic, climatic, social, cultural and technological context of each historic period. In this regard, the historic periods included in these Applied Design programmes cover both European and African influences. In addition, this segment of the curriculum-in-action includes the principles and theories underlying design and systems thinking, the principles and applications of universal, inclusive and user-centred design as well as design for sustainability and the use of environmentally-friendly materials in design. Although there are slight variations in terms of the different aspects covered in each of the Applied Design programmes, the core elements are represented in the concept map (see **Figure 4.10**) which was created by academic staff members who taught the subject: History & Theory of Design across the five Applied Design programme

during 2012. The concept map shown in **Figure 4.10** was developed during a focus-group session of Industrial Design in August 2012.

4.4.2. Fundamental principles, theories and elements of design

The theories, principles and elements or components of design are the core components of the five Applied Design programmes. These are the conceptual aspects that inform the design activity and include colour theory and psychology, design principles (e.g. balance, emphasis, rhythm, movement, pattern, proportion, repetition, variety, unity) and design elements (e.g. line, shapes, colour, space, texture). This segment of the curriculum-in-design relates to the historical, social, cultural and environmental influences (**Paragraph 4.1**) as well as the next four segments (**Paragraph 4.3-4.6**).

4.4.3. Drawing and problem solving

This segment of the curriculum-in-design relates to the next three segments, namely the use of various techniques, a range of equipment, tools and technology (**Paragraph 4.4**), the use of range of available materials (**Paragraph 4.5**) and finally the design product or solution (**Paragraph 4.6**). The art of sketching and drawing forms part of the problem-solving process that designers engage in during the execution of the design product. Depending on the medium used in the drawing (e.g. pencil, charcoal, markers, pastels, pen and ink, crayons, paint, etc.), the medium onto which the drawing is applied (e.g. canvas, paper, plastic, metal, wood, cardboard, textile products, etc.), the drawing technique used in the process (e.g. rendering, masking, etc.) and the different types of drawings (e.g. fashion illustrations, figure drawings, technical drawings, architectural drawings, cartoons, etc.) used in communicating the design idea, the designer is able to use an “abductive reasoning” (Cross, 2011:27) process to produce an end result and/or solution. According to March (1976) in Cross (2011:27) an abductive reasoning process is different from deductive and inductive reasoning:

According to Peirce [in March, 1976], “Deduction proves that something *must* [italics in original text] be; induction shows that something *actually* [italics in original text] is operative; abduction suggests that something *may* [italics in original text] be.” It is this hypothesising of what *may* [italics in original text] be, the act of producing proposals or conjectures, that is central to designing.

Drawing is therefore an inherent component of the problem-solving process and a means of visual communication between the designer and the client as indicated by Cross (1990:128):

The most essential thing that any designer does is to provide, for those who will make the artefact, a description of what the artefact should be like. Usually, little or nothing is left to the discretion of the makers; the designer specifies the artefact’s dimensions, materials, finishes and colours.

The designer's aim, therefore, is the communication of a specific design proposal. Usually, this is in the form of a drawing or drawings, giving both an overview of the artefact and particular details. Even the most imaginative design proposals must usually be communicated in rather prosaic working drawings, lists of parts, and so on.

4.4.4. Techniques, equipment, tools and technology

A wide variety of different techniques (e.g. in jewellery design techniques such as shaping, forming, filing, sawing, polishing, soldering, smelting, drilling, riveting, etc.), equipment (e.g. sewing machines, drilling, sanding, printing equipment, etc.), tools and technology (e.g. a wide range of computer aided design software programmes such as Corel Draw, Photoshop, Illustrator, Painter, etc.) are used during the design process. The different features of computer-aided design software programmes allow the designer to modify, add, undo and/or delete an action, thus enhancing the quality of the end product requiring an advanced level of technical ability and computer skills. The type of computer-aided design application would vary depending on the end product that has to be produced (e.g. advertisements, magazines, special effects in animation, technical illustrations, etc.). In addition, digital photography, specialised input devices (e.g. tablets and touchscreens) and digital printing machines play an important role to produce the end product that would meet the requirements of the industry.

4.4.5. Materials

Without a thorough understanding of the range of materials including the internal and external structure, chemical composition, properties, manufacturing processes, finishes and the end-uses of the different types, it is virtually impossible for any designer to produce an end product that will meet the requirements of the client. Materials would include metals (ferrous and non-ferrous), steel, plastics (thermosetting and thermoplastic types), textiles (cellulosic, protein, regenerated and synthetic types of fibres), woods (natural and man-made types) as well as recycled, sustainable and renewable materials. The concept map (see **Figure 4.4**), produced by academic staff members during the focus-group discussion of Industrial Design, provides a glimpse into the range of materials applicable to these Applied Design programmes. An extensive range of materials is also applicable in Jewellery Design that would include gold, silver, platinum as well as natural (precious or semi-precious stones) and artificial gems and gemstones, hence a good grounding in gemmology is also needed. The type of materials or a combination of different types of materials to apply toward the development of the design idea will be based on the particular type of end product. The cost and availability of materials are important considerations.

4.4.6. Design product or solution

Cross (2011:11) points out that one of the important aspects of design ability is to reconcile the variety of interests – aesthetic, functional, technical, social, financial and others into an end product or design solution such as a garment (Fashion Design), corporate logo, poster or product packaging (Graphic Design), piece of furniture (Industrial Design), textile product (Surface Design) or a bracelet or ring (Jewellery Design). One of the perhaps most obvious attributes of design is, that it makes ideas tangible, it takes abstract thoughts and inspiration and makes something concrete (Hunter, 2013).

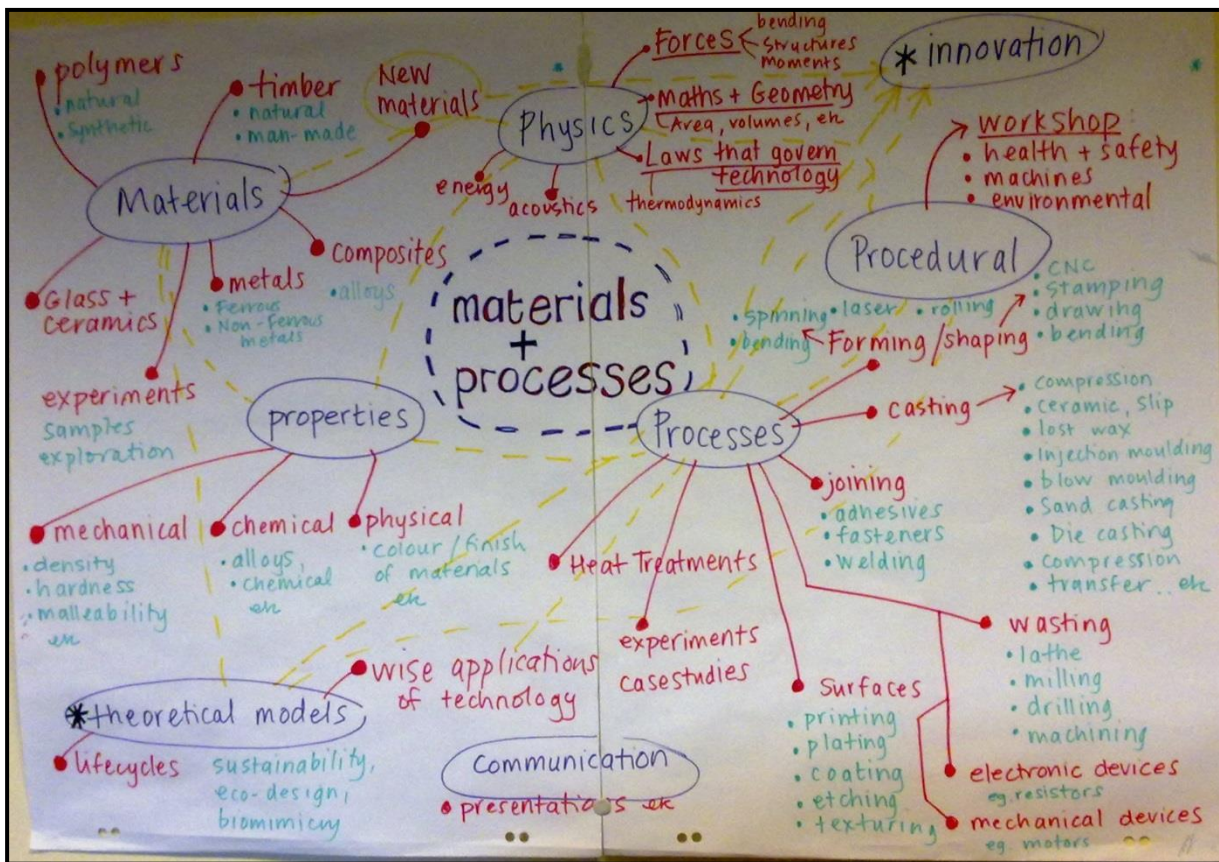


Figure 4.4: Concept map of materials used in Industrial Design produced by academic staff members in a focus group session

Designing is human-centred, it is in essence “a personal, cognitive process, but a shared, social process” (Cross, 2011:20), since in the process of design consensus has to be reached among participants (e.g. designer, client/s and manufacturer/s) often with different interests in the design process and those interests have to be reconciled to achieve an acceptable end product and/or design solution. The end product and/or design solution is the result of a dynamic and interactive process of using available materials and application of techniques, tools, equipment and technology (e.g. computer aided design software programmes) to achieve the desired end result that will meet customer expectations.

The design process can be described in terms of four distinct phases, namely: discover, define, develop and deliver (Hunter, 2013). **Figure 4.5** shows the double diamond model (Design Council, 2005) which consists of:

- **Discover:** Designers use a variety of sources for inspiration and often employ more sophisticated methods such as market research, sales records, social networks and design research groups and reports to gather insights and to develop an opinion about the development of a new product.
- **Define:** During the defining stage of the design process, designers need to make sense of all the possibilities identified during the previous phase. The goal during this phase of the design process is to obtain clarity on the requirements. A design brief or a set of specifications is often used to frame the fundamental challenges of the design project.
- **Develop:** During the third phase of the design process solutions are created and prototypes are produced. This process of trial and error or as described by Rowe (1987) in Cross (2011:21) as a “series of related skirmishes with various aspects of the problem at hand” consists of the “to and fro’ movement between areas of concern”; in other words, an iterative process of exploration and evaluation.
- **Deliver:** The final phase of the design process is reached when the resulting product or solution is finalised and it is ready for launching. The final testing, evaluation and approval of the end result might include several feedback loops.

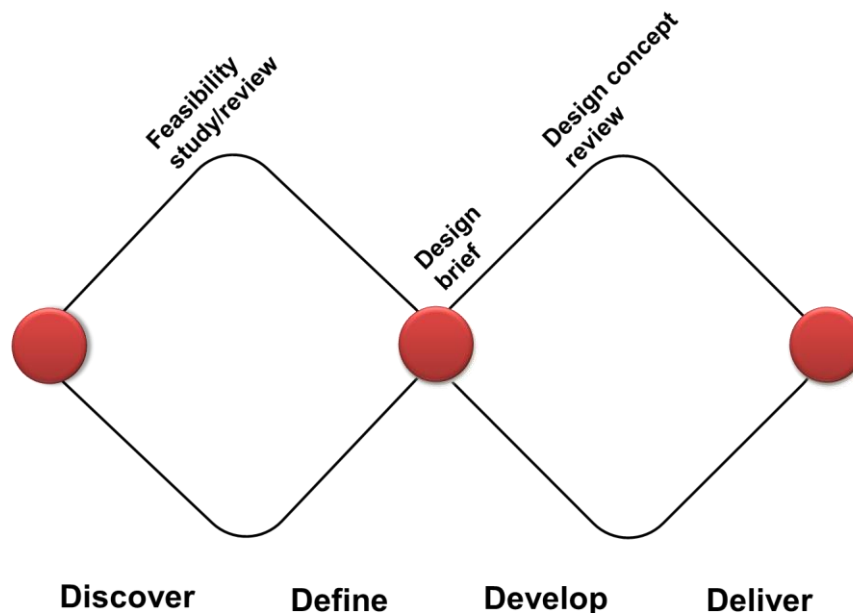


Figure 4.5: “Double diamond” design process model

Source: Design Council, UK (2005)

<http://www.designcouncil.org.uk/about-design/How-designers-work/The-design-process/>

4.5 Categories of description: Academics' conceptions of graduate attributes in Applied Design curricula

The data analysis process revealed four increasingly complex, qualitatively distinct categories of academics' conceptions of graduate attributes; these are listed in **Table 4.2**. The understandings or conceptions of academic staff members in Applied Design at the site of investigation vary along several dimensions such as:

- The nature and purpose of the graduate attribute outcomes in relation to the design process.
- The conceptual and contextual aspects underpinning the graduate attributes.
- The degree of complexity ranging from atomistic, technical abilities to complex interwoven capabilities.
- The relationship between the achievement of the graduate attribute outcomes and the individual or collaborative effort of students.
- The internal and external focus of each categories of description.

The nature of these relationships has consequences for the curriculum design of Applied Design programmes in general. More importantly, however, it has a bearing on the development of employability skills in an age of uncertainty, and as such relates to accommodating inter- and multidisciplinary in the curriculum, developing authentic learning experiences for students to prepare them for the world of work and to develop a sense of self or being.

Table 4.2: Applied Design academics' conceptions of graduate attributes as learning outcomes in their curricula

Category A	Category B	Category C	Category D
Competency-based, task-oriented approach towards the development of technical skills within a given situation	Situational awareness and responsiveness to various needs with a concerted effort to strengthen the link between technical and creative aspects of the design process	A broad conceptual and contextual underpinning supports the development of graduate attributes appropriate to a changing workplace context	Creative and dynamic exploration of design ideas, including strategic decision making, synthesis and collaboration to achieve complex design solutions contributing to society in general

Each category is described in more detail in the section below and supporting evidence is provided in the form of illustrative quotations. As the transcripts cannot be presented in their

entirety, it is important to take cognisance that these are sample excerpts, identified for the purpose of reporting the findings. The categories of description as listed in **Table 4.2** were developed based on the collective pool of meanings obtained from the set of data sources (including the concept maps, voice recordings of focus-group discussions and semi-structured personal interviews). The description of each category is presented in the following way:

- The **label** of the category.
- The **diagrammatic representation** of the subject-object relationship in the beginning of each category of description also illustrates the relationship of the knowing, doing and being elements related to each category.
- A **concise description of each category** explaining both the structural and referential aspects associated with a particular category.
- Supporting evidence is provided in the form of a **collection of illustrative quotations** that have been carefully selected to present the qualitatively different conceptions that Applied Design academics have of graduate attributes in their curricula.

Category A: *Competency-based, task-oriented approach towards the development of technical skills aimed at a particular end product*

The lightness of the background surrounding the elements of knowing, doing and being indicates the limited presence of the external environment; the broken connecting line symbolises the lack of integration; and the size of the shapes indicates the prominence of these elements in the curriculum.

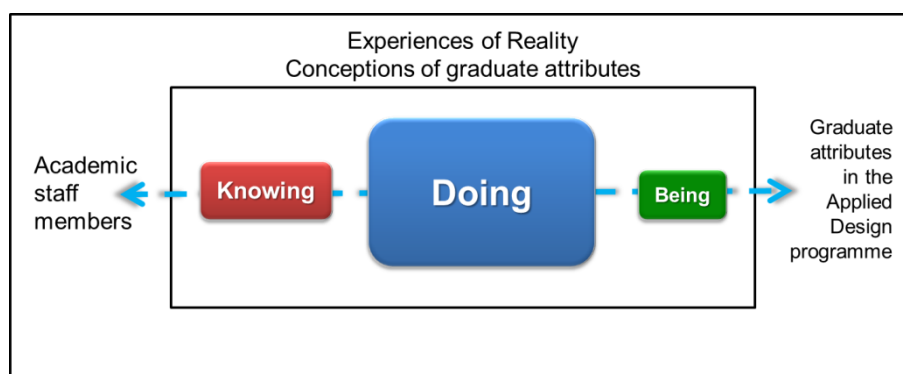


Figure 4.6: Category A: Diagrammatic representation of the relationships illustrating the experience of the phenomenon

This category of description is characterised by a static, often rigid and teacher-centred approach to the covering of subject content and limited integration between theory and practice. The emphasis is on competency-based skills acquisition aimed at translating an idea into an end product for a specific situation, which inhibits students' abilities to develop a

strong sense of professional identity and a personal style in their design work. An overemphasis on the competent use of tools, equipment and technology drives the design process and limits creativity. The individual student's effort in executing the design task, often clearly defined in design/project briefs⁹, is prominent in this category of description.

In this category of description a general sense of "technical rationality" as defined by Schön (1997:125-126) in Dall'Alba (2009:39) prevails, based on the assumption "that practice comes to be seen as mere technique, the efficient matching of means to ends in predictable and routine ways" with the practitioner [designer] "reduced to the role of 'technician', the applier of techniques". Schön (1998:41) in Dall'Alba (2009:39) is critical of the separation between acquisition and application of knowledge and skills, which implies that in this way of conceiving the curriculum it is assumed that knowledge and/or skills are first acquired and then applied in practice, as the need arises. In the section that follows, key elements of this category of description are provided with supporting evidence in the form of illustrative quotations.

The curriculum is defined by what should be taught, consisting of theoretical knowledge and practical skills that are not well integrated:

There is something about the [curriculum] structure and the separation of theory and the practical subjects ... there isn't a meshing going on ... I've also taught Design [subject in the curriculum] and somehow Design [as a subject] is almost treated separately from a skill base thing like Pattern Construction or whatever and there's almost – creativity almost gets stamped out – I find ... [Fashion Design participant]

The curriculum is seen by the staff members as static and even rigid, a product to be delivered with emphasis on the development of high levels of technical abilities and procedural, context-dependent knowledge and skills aimed at delivering an end product for a given situation and fit for a specific purpose.

Curriculum seems to be quite a static, finite, concrete thing ... the role of the learners are to cover the course content ... [Surface Design participant]

... curriculum, I said, to provide a learning structure of the course and also to set learning objectives ... and with regards to the student ... to adhere to course and project guidelines ... [Graphic Design participant]

I just want to add that experience with the project we did for [name of a company] last year when we had a specific brief to fit into ... students had to do just that ...we would definitely like to incorporate more client type projects where students ... maybe just work with those kind of specs [specifications] where they have to design for a specific client ... this is your spec and you stick to that ... [Fashion Design participant]

⁹ A comprehensive, detailed design/project brief becomes the guiding document for the entire design process, and spells out exactly what the designer needs to do as well as the limitations and/or constraints within which the designer has to execute the task.

... and also that the way it's structured, with the essence of technique ... there isn't enough encouragement for creative exploration and for process orientated work, that doesn't necessarily end up in a product ... [Jewellery Design participant]

Theoretical knowledge components are teacher-controlled and often textbook-driven with emphasis on coverage of subject content.

So, this is lot more textbook than everything else ... [Industrial Design participant describing a concept map of the materials components in the curriculum]

... we looked at these four elements as being core to both sides of the entrepreneurial, business, management side and the materials, tools and technique side. Knowledge of properties, behaviour and uses, ethical sustainable ecologically friendly considerations, social design and economic sustainability and research skills. It's a little bit squashed because some of them came out as we talked [referring to writing in the concept map]. And then under materials, tools and techniques [main heading] there's materials, tools and techniques [as sub-headings] and we eventually come up with we feel that there's perhaps too much on textiles now in the course. It's perhaps because the course was originally only textiles, we're not sure, but we touched on recycled paper, ceramics, smart materials, new materials, which are other commercial applications but we spend most of the time on textiles doing natural and man-made fabrics, which are then unpacked. They do practical application, yarn construction, wovens, non-woven, knits, others and various finishes which are both aesthetic and functional and that covers a big area and then ... [Surface Design workshop participant describing a concept map produced in the focus-group session – See Figure 4.7].

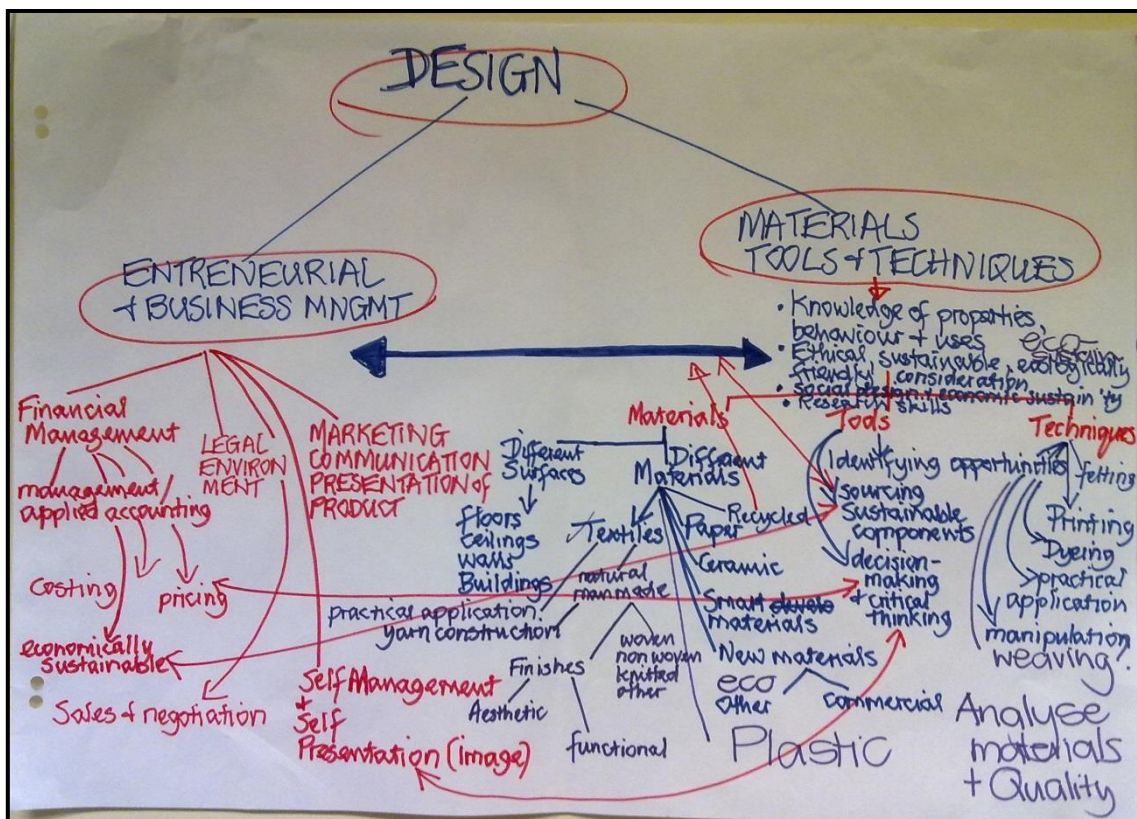


Figure 4.7: Concept map of key aspects of Surface Design programme produced by academic staff members during a focus-group session

Students are required to adhere to the requirements defined in the curriculum and project briefs, leaving them with limited scope for exploration. The execution of design tasks are related to a specified range of materials and techniques, often based on technology available in practical laboratories of the academic department and according to specified methods and procedures.

In pattern construction, what we do is we start off, obviously it escalates as we start off, but from first year you start with your basic pattern, understanding that there's basic different kinds of basic blocks ... so you start all of that – how to adapt all your blocks, know how to manipulate blocks into – applying into different kinds of styles in between and then also all codes of pattern information because a pattern is not a pattern if it doesn't carry any information. So ... we will start by drawing basic blocks, understanding the fit and the shape of all the different kind of blocks, dart manipulations, playing around with that. Then we look at bodices – on the bodice we do sleeves, collars, centre fronts – all the different parts. Then skirts, pants, dresses, jackets, coats, corsets, lingerie, eveningwear and kiddies wear. ... we feel that we're doing so much that we can't really get into too much detail on each of these. So there's something that you [we] must re-visit ... [Fashion Design participant describes details of a particular subject]

... the students work with a template, especially in first year they need a template, because they can't really judge what size is this supposed to be and keep it all in proportion. [Fashion Design participant]

... we started with the brief ... according to us it is identifying the problem. It is a contract between you and whoever set up the brief. It's deliverables, deadlines, constraints, parameters and literacy are all those important things in a brief and what comes out of that is you need to understand language, you need to understand time management, the Gantt charts ... allocations, assessments, criteria, all that sort of stem out of the brief ... [Industrial Design participant]

So you start off with a very – quite a precise brief in your first year you'd have to design this, it must have this and this and this and that and the other in it. But then later on towards third year your brief would become a bit more for the student to decide what to go into the brief, rather than being so specific. So it starts off with basics, going into more of the broader things. [Fashion Design participant]

There appears to be an imbalance in the time allocated in the curriculum to design related activities in relation to the time allocated to the development of technical skills as described by this participant:

...and then obviously, the seriousness of ... to try and find a really harmonious balance between time spent here [high levels of technical skills at the work bench], compared to here [design skills] because this at the moment is sitting on a 90% [technical skills] and 10% [design skills]. [Jewellery Design participant describing concept map produced during the focus group session].

The Jewellery Design focus group participants grappled with the following question during one of their focus-group sessions: "It's – do you have a CAD operator, do you have a bench worker?" They proposed a possible solution to address this tension in the curriculum by suggesting:

... it would be really quite nice if at second, at the end of second-year level, a student could choose to go into the third year as either a technical person or a design person. And then really get into all of this on a much deeper level. So but when you do qualify you would qualify either as a manufacturer or as a designer. That's just a possibility ... [Jewellery Design participant]

During the manufacturing process the emphasis is on achieving acceptable standards of workmanship, focussing on the competent use of technology, equipment, tools and techniques covered in the curriculum.

We [the group of academic staff] actually said a way to actually stimulate [the development of] those skills [are] through repetition and exercising them [Industrial Design participant]

... main point of focus for our practice is to teach students good quality and a skill to either become the designer or the pattern maker or the garment maker and ultimately to make the whole, the processes fit together and make one big picture out of that ... this is basically what our students need to do when they're finished ... [Fashion Design participant]

It's important that we create sort of competent "generalists" ... [Industrial Design participant]

We also said you need to be a master of technology ... you need to have a vast knowledge of materials, a vast knowledge about the technologies and processes to change those materials and to use those materials ... [Industrial Design participant]

... [as] a department we have realised that there is a need for somebody to do engraving, there's a need for somebody to do setting, a need for somebody to do enamelling ... so we're giving our students a very comprehensive idea of what one would need to make one piece of jewellery and I think that we're quite thorough in that ... [Jewellery Design participant]

Fundamental principles of theoretical (conceptual) components are contextualised with the primary purpose of supporting the development of end products. These do not necessarily provide a sound theoretical underpinning to support complex decision making in a changing workplace context. Students often engage in problems that are "clean-cut", well-defined or textbook-driven, with information to solve many of the problems readily available and accessible to students.

Well, there I think the word Professional Practice [name of subject] either should go as a name of a subject, because it's misinterpreted, it's seen as a business component only of rands and cents and a business plan and strategic plan and that...[it has] nothing about values or anything like that, nothing about communication. Nothing about – well thinking on your feet! Nothing about change. Nothing about understanding that as a designer and you're working with your client, how you relate to the client and how you make the changes because the client will ask you, you know if they come to you as you've rightly said, my budget's just dropped or it's been cut or whatever it may be, the client will say to you, as the designer, how will you, what would you do – how do you – what suggestion do you make and then the designer has to turn around and say well I can adapt, I understand that. I can also make the following suggestions, which will not actually affect the end result, but may streamline it to a certain degree. But on the other hand I will not have so many contact sessions with you so that will cut your costs or something like that. Or whatever, you know different ways of bringing about the change which a designer is supposed to do ... [Graphic Design participant]

And I see it – I saw it with my colleagues last year in Design [name of subject] – there wasn't necessarily a connection between, what the lecturers did and how they saw their subjects, and how the student was going to earn a living. [Graphic Design participant]

What I often find with portfolios that come out of colleges is that the projects are quite blue sky, they're not necessarily in touch with the kind of projects that we would do or real sort of industry kind of work ... you know there are no real restrictions or limitations to have been imposed on them like they are in the real world. For example budget limitations. So you know the projects always come across quite blue sky, which you know I mean it's easy to judge and you can tell whether the student can design or not. But I think you know it would be nice to introduce some form of, kind of, it's that business thinking ... [Graphic Design participant]

Key components of the design curriculum are not interconnected and students have difficulty seeing the logical links between subjects.

So it's a big challenge for us in the classroom to get there and then the student, I think the important part for students for curriculum is ... to make the links between all the subjects for the different components that we offer because often the students don't make that link they see it in compartments. [Surface Design participant]

They're solos. I mean it's like you go into – I mean we have – I mean I sometimes want to kill every student that I see because I keep saying to them must I repeat myself a thousand times? I am saying to you what you were taught in one subject please use it in the next subject. Don't leave it there. It's not necessary there. There's part of that that you can use those skills bring them across. [Graphic Design participant]

“Generic” graduate attributes such as communication skills, information and academic literacy skills are not seen as enabling and transformative mechanisms in the curriculum; in fact, they are isolated components treated either as precursors or additive components to the core of the curriculum.

That's about literacy and lack of numeracy and inability to take notes and students' inability to function in texts, because they can't handle the material and they don't know how to study and they don't actually study. [Fashion Design participant]

We were talking about this yesterday at the staff meeting. We were talking about it from the point of view of the theory subjects, more than anything else. How do we integrate those theory subjects that the practical Graphic Design, the Graphic Design says to the theory you know, the service department come we need this and we need this and this and this and this to be done, how do you see, you know, yourself doing that because that's what we require? Now we are looking at Professional Practice, because Professional Practice is stand-alone ... the lecturer comes in and waffles about something – says something about this, so he is, well here is the assignment, gives a mark and finished with it. [Graphic Design participant]

The portfolios of design work show that students are technically competent, yet these portfolios do not display the students' personal style and/or a sense of agency.

It's an interesting thing because it, there's a similar thing, a student came to me like last year and I looked at her portfolio and I said I don't know if I can hire you. I don't know based on your portfolio I can hire you, but what I can do is I can make you employable. Looking at your portfolio, what can you change in your portfolio that's going to get you a job? You might not get the job that you want or the agency you want to go to or design studio but at least you know, you, and that was a first time for me, it was like, okay, all of a sudden I'm faced with someone, how do you make them employable. It's tough ...

[Graphic Design industry participant who participated in the focus group discussion as an external moderator of the programme].

So in terms of things to leave out I mean it's such a personal thing you know. I always say to students if there's anything that you need to apologise for in your portfolio why is it in, because you should never sit in front of somebody and apologise for a portfolio. [Graphic Design participant]

In summary, this category of description is mainly about the acquisition of competency-based technical skills (the “doing” component of the curriculum) as defined in the design/project briefs and within the limitations imposed by the particular situation.

Category B: *Situational awareness and responsiveness to various needs with a concerted effort to strengthen the link between technical and creative aspects of the design process*

The slightly darker background surrounding the elements of knowing, doing and being indicates the increased presence of the external environment; the dotted connecting line symbolises the higher degree of integration and the size of the shapes indicates the prominence of these elements in the curriculum.

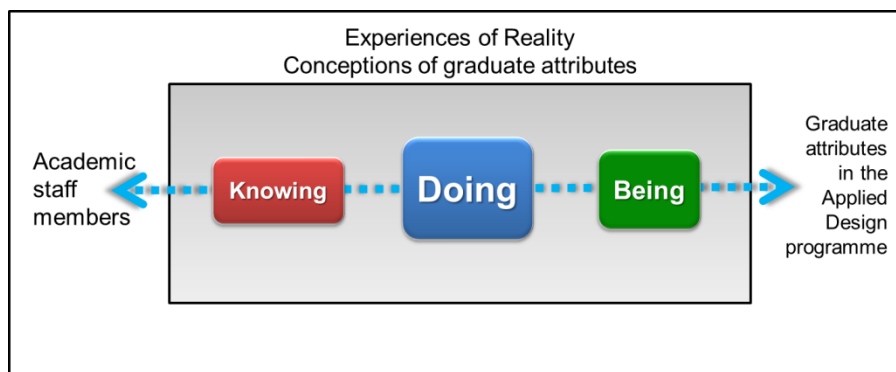


Figure 4.8: Category B: Diagrammatic representation of the relationships illustrating the experience of the phenomenon

In this category of description, academics’ experiences of the curriculum reflect a sense of flexibility and openness to external influences, based on an awareness of different contextual issues and on acknowledging the importance of responsiveness to the various needs of a range of stakeholders. This would include the students enrolled for the programme, potential employers, as well as industry and society in general. The lack of integration between theory and practice, as indicated in the previous category, is less prevalent. The experiences in this category illustrate the interrelatedness of the creative and technical abilities to design and produce a product to meet a given situation. Although the development of graduate attributes is aimed mainly at the efforts of the individual student, the students are encouraged to accommodate external influences in their design approach and to develop products that appeal to a wider audience. The development of professional identity is influenced by limited exposure to the economic realities of the workplace, although more authenticity appears to

be prevalent in the curriculum. In the section that follows, illustrative quotations provide supporting evidence.

The need to adapt to the changing context through social, cultural and economic awareness and to respond to the needs of various role-players are evident in the comments, yet these considerations do not necessarily enjoy enough prominence in the current curriculum:

... the purpose of the curriculum provides the framework for learning that is open for change and flexibility to adapt to the changing context ...[Surface Design participant]

... there was great need for diversity ... in terms of knowledge and skills. Flexibility was seen to be important and context dependent i.e. South African ... [Industrial Design participant]

... critical that students have better knowledge and be in touch with, especially the external environment ... [Fashion Design participant]

... a curriculum defines the scope of a programme's body of knowledge. It suggests teaching learning methodology. It provides a fit between industry, workplace needs and academic offering. It needs to be responsive to changes in broader context and the HE teacher should be involved in keeping the curriculum relevant, responsive and applicable ... [Graphic Design participant]

The following participants described the importance of economic realities by saying:

Ideally they [students] should also have an idea of what the economic situation is because they [students] can't be away from it. So it's a whole lot of practical stuff ... numeracy and ... their ability to handle information and analyse it and the information is financial. [Fashion Design participant]

But they need to be able to operate in a business context as well, whether it be within a large company or whether it be in an entrepreneurial environment ... [Surface Design participant]

The client is a very important part in Design, getting to know your client, design context, the brief and the client ... [Fashion Design participant]

You referred from concept to product, we say yes, product, concept to product, but linking it to end of market. So we have to have students that have a good idea of the process, the production process linked to time management, what must happen where, so that we can get a product to market and obviously that will link in with marketing and the costing as well of products. [Fashion Design participant]

... what does a designer really need to know and what do they need to be aware of, because when you're moving between contexts you can't know everything. But the designer might move between so many different contexts ... it's not just the cultural context and the social context, but the business as well. They need to be able to speak to possible users and again those users are so varied and also in different contexts. [Industrial Design participant]

This academic staff member teaches some of the generic graduate attributes in several of the Applied Design programmes included in this research project and describes how she accommodates the needs of the various programmes:

Yes, I mean look at the whole numeracy module, it's context-dependent because I aim at teaching them what they need in their specific discipline of design... the computer, the basic computers and MS Word, Excel, PowerPoint is also context based, excepted maybe the Excel because they don't really – unless they do further studies and they have to deal with statistics or you know they don't need the Excel so much but when I have time then I show them how they can do their personal budgeting using a spreadsheet. But the PowerPoint they need, because they do need to give presentations and obviously the MS Word they need for their essays and so on. So that is very much context-based ... [Professional Practice & Business Studies participant]

The interrelatedness of technical and creative aspects in the curriculum is acknowledged in the following statements:

We also said you [designer] do need to communicate visually, so you [designer] need to have understanding about the semantics of a product, so how does this product, how do you [designer] interact with the product and how does the product, you know interact with you [designer]. [Industrial Design participant]

And even although there is so much focus on digital stuff, still we all know what kind of skills you need to become a great designer. You need to have attention to detail and you need to have very sharp observational skills for instance and drawing is one of those activities that develop those skills. So it's kind of like looking at what types of activities and projects will actually underline and develop those skills. And the hand skills are still the most important, I think you cannot become a great Designer and just depend on what happens on the computer. You have to have that natural ability of everything else that's involved. [Surface Design participant]

Another Industrial Design participant indicates the tension between the technical and creative aspects in establishing the professional identity of a designer by stating:

... they need to be knowledgeable about the different aspects of design, use many processes and materials. What is needed in the industry is the creative thinker and the technical, mathematical person who makes things happen ... they're different people ... they're two animals, they're not necessarily the same person. [Industrial Design participant]

A Jewellery Design participant describes the relationship between theory and practice in this field of study by saying:

[It is] not just looking at the material as a material but also the understanding of the theoretical, the theory of these [e.g. non precious and precious metals, precious and non-precious gemstones, plastics and fabrics] and how they are used in our practice. [Jewellery Design participant]

Still another Jewellery Design participant stresses the importance of employability skills by indicating:

At the moment our students are the only employable graduates for industry orientated stuff. So I think we could easily do it and I think that it will be – because some students really do not have the hand skills but they have incredible design or they're great on the computer and they understand things you know. But the hand skills aren't there and they're not interested. [Jewellery Design participant]

Academics' experiences indicate that limited exposure to the economic realities of the workplace impacts on students' employability and their development of a professional identity

as designers. Several participants emphasised the importance of a portfolio of work that would distinguish the student from the rest:

... the whole kind of research through to the concept through its drawing, through to CAD and Illustrator and Photo Shop skills is a universal path for a creative designer and if they want a desk job within a fashion house, if they can draw these – even if they're not naturally really communicative, that portfolio is going to talk for them and I just said if they haven't got stunning portfolio to go ... that they're going to be beaten by – the competition. [Fashion Design participant]

Another Fashion Design focus group participant supports this view:

They need to understand their customer. If they want to go and work for – do their own, like Gavin Rajah [well-known SA fashion designer] and kind of couture they have to know their customer ... that may be where they have to start making decisions early enough so that you can tailor their portfolios accordingly and get their mind-set to understand what they're researching ... [Fashion Design participant]

This participant comments on the development of self-awareness and a sense of being by stating:

... [the] exploration of identity which goes into personal history, your own story, your cultural heritage, social heritage, which does link to History [of Design] but this is in a more personal sense ... this exploration is supported by the use of information literacy skills and basic research skills by doing a timeline, a historical jewellery timeline and they're [students] engaging with social, cultural, political forces which inform design contexts ... [Jewellery Design participant]

In summary it is clear that, although there is evidence of external influences impacting on the curriculum, the emphasis is on procedural knowledge with the fostering of links between creative and technical skills to produce a (jewellery, fashion, textile, industrial or graphic) design product for a given situation.

Category C: A broad conceptual and contextual underpinning supports the development of graduate attributes appropriate to solving design problems in a workplace context

The darker background surrounding the elements of knowing, doing and being indicates the increased presence of the external environment; the solid connecting line symbolises the extent of integration and the size of the shapes indicates the prominence of these elements in the curriculum.

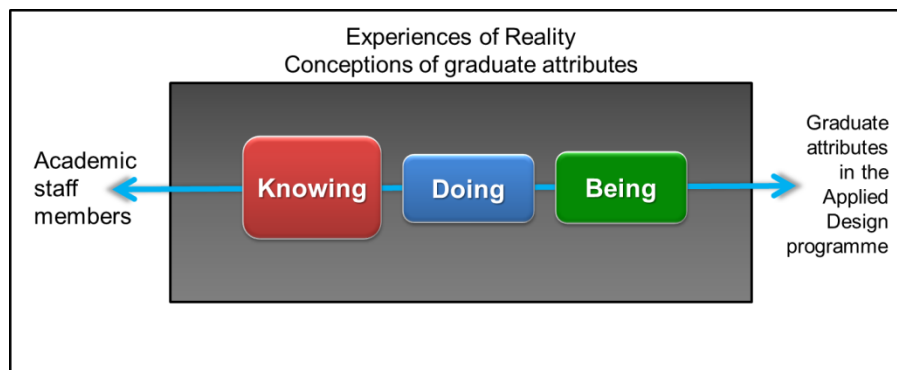


Figure 4.9: Category C: Diagrammatic representation of the relationships illustrating the experience of the phenomenon

In this category of description, the curriculum is even more flexible than in the previous category, adapting more readily to multiple external influences, and thus allowing students to develop interrelated clusters of graduate attributes appropriate to a changing external context. Although the use of tools, equipment and technology is at an advanced level of mastery, a broad understanding of the conceptual and contextual elements such as political, social, economic and historic influences, business and management studies, materials and technology has a more prominent role in the design process. Academics' experiences indicate that the curriculum aims to enhance critical thinking and reflective practice. Students are able to develop a stronger sense of professional identity and the design portfolios exhibit a prominent presence of a personal style or design signature that enhances their prospects to find employment in a changing workplace context. A stronger entrepreneurial focus with an improved understanding of economic realities, market forces and customer needs prevails. Students are encouraged to work collaboratively on design projects and to develop interrelated clusters of creative, technical, conceptual and personal skills and abilities. Supporting evidence, in the form of illustrative quotations, is provided in the following section.

The curriculum adapts more readily to multiple external forces (see **Figure 4.10**) that equip students for a changing context, as described by a number of academic staff members quoted below:

... we [academic staff members] saw communication as being the most important thing and taking responsibility for what you do and the thorough understanding of industry ...

being responsive to situations and flexible to changing needs and requirements. [Industrial Design participant]

The political, economic, social, technological environments in which we operate and also your internal environments within an organization or within a sub-system so that they know how they can manipulate these things to – in terms of a strategic swot analysis, to be able to identify opportunities and the threat in the organization. And then also ... the whole aspect of social entrepreneurship, community interaction ... [Fashion Design participant]

... we provide historical studies which give environmental, social, political, material, culture and also cultural background to specific periods. We provide academic skills which relate to the “doing” aspects [in the curriculum] and integrated with this is the cognitive development. [Fashion Design participant]

We look at broad trends and also trend cycles which also involve events – re-occurring events around social environmental and political factors. [Fashion Design participant]

... they should also be able to interact with communities, cross-cultural enrichment if we can call it that. We feel that should become a very important aspect in this process. [Fashion Design participant]

This academic staff member comments on the interrelatedness of the components impacting on the design process by stating:

the problem for us is everything is so interconnected that it's not something that you can really pull apart and it lives on its own ... [Industrial Design participant]

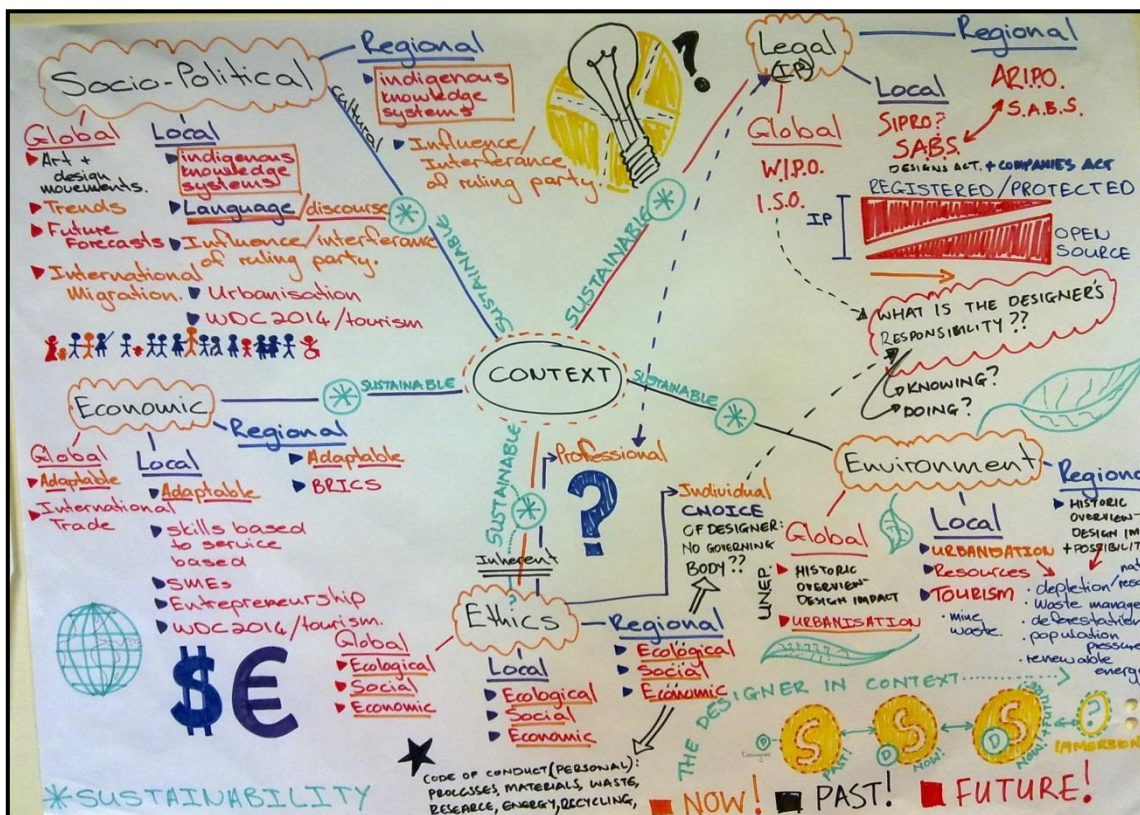


Figure 4.10: Concept map of key aspects of contextual aspects in Industrial Design programme produced by academic staff members during focus-group session

Although the use of tools, equipment and technology is at an advanced level of mastery, a broad understanding of various conceptual and contextual elements (see **Figure 4.10**) has a more prominent role in the design process, as it is linked to the development of critical reasoning skills and reflective practice. The following quotations illustrate academics' experiences in this regard:

Industrial Designers cross borders, they are generalists. They need systems knowledge. [Industrial Design participant]

... when it comes to fourth year, it's driven by the students where their critical thinking is determined by the types of questions they ask and they've got to ask probing questions. What and why questions and their final question has to be a how question, which is a solving question and that's carried through into their product development. [Fashion Design participant]

A lot of the students would design something and go off brief because they concentrate on what are my feelings about and then they [keep a] journal and they write about that ... So maybe, I wouldn't say have a course on how to write your feelings just sticking to a brief and then reflecting on it. [Surface Design participant]

Students are able to develop a stronger sense of professional identity, and the design portfolios exhibit a prominent presence of a personal style or design signature, supported by a mastery of technical skills that enhances their prospects to find employment in a changing workplace context.

Portfolio is an indicator and something that's equivalent to ... the indicator for the portfolio is in fact, the person's personality as well. It's really important. [Graphic Design participant]

... and as a designer you adapt ... as a person that you need to adapt constantly. You study something now, in two years it's maybe out of circulation and you need to adapt with what else is out there and that's why we also said your basics will always be there. Your basic drawing. Your basic colour studies. Your basic stuff needs to be there because if Eskom goes and we don't have computers and we need to bring to out the paint and the sketching boards then we have to do that and also it makes you a better designer, if you can sketch by hand and then also on the computer. [Surface Design participant]

... the competitive edge to this programme is that we're keeping up with the emerging technologies ... [Jewellery Design participant]

This focus group participant commented on how the curriculum should respond to a changing world by stating:

.. that they [students] hopefully will carry the ability to innovate and think on their feet in order to adapt to the particular opportunity that presents itself ... [Surface Design participant]

A stronger entrepreneurial focus prevails, supported by a thorough understanding of economic realities, market forces and customer needs, with closer ties to the design process – as indicated by the following participants:

Usually in third year I give them [students] one [project] in the beginning of the year which is on a business of their own choice, an existing business and then after that they've got to do one on how to establish a business where they would present the business plan to a financial institution to get money. So here, they have to do a much more comprehensive thinking process about what they ... want to start up. [Fashion Design participant]

So in order to do good research, what do they need to be able to do and in order to design a product ... and with tying into that, is also then this idea of justifying the design decisions, why they're doing what and in order to do that. We [Industrial Design participants in the focus group discussion] looked at you know, current design and looking at this idea of cost versus benefit and that's along socio-economic lines, but not just the financial cost of doing something, but the social cost, environmental cost as well as the benefits and being able to know when they do something, what the effects are going to be and therefore justifying their design decisions. It ties into ... knowing how to do things, knowing like why are they doing them and then also knowing when to do it. [Industrial Design participant reporting back on focus group discussion]

... entrepreneurial business development [includes] five main areas [in the curriculum]: Marketing, communication and presentation of product, self-management and self-presentation and image which includes managing your own stress and definitely developing critical thinking skills and presentation of product and self. You would have to develop the skills as you go along to a greater extent if you actually become an entrepreneur, but you should be given enough to have the base ... [Surface Design participant]

The next participant indicates the positive impact of developing a strong entrepreneurial focus in the programme by saying:

We've produced graduates with good work ethics because they're hardworking students, reliable ... graduates have an entrepreneurial edge. So often, even if they are employed in industry, they'll have their own thing going on running parallel to that or they will actually start off in fourth year with their own line and then take it from there when they graduate, which is also really encouraging ... [Jewellery Design participant]

Students are encouraged to work collaboratively on design projects to enhance interaction on a personal level among students from diverse backgrounds, based on "fundamental values of respect for persons and a concern for the open society" (Barnett, 2006:55):

... it's a very broad dictation by the university that we have to have students to interact on a social basis as well, to try break down the silos in our cultures, you know the sub-cultures ... so that people understand one another because ... in the real life you're going to work together one day ... [Fashion Design participant]

In summary, the conceptions of academics in this category of description point towards a higher degree of responsiveness to external influences than in the previous category. In this category, with reference to Bloom's dimensions of knowledge (see **Paragraph 4.1.1.2** in **Chapter 2**) consisting of factual, conceptual, procedural and metacognitive forms of knowledge, a more balanced approach is adopted: one that enhances the development of graduate attributes as interrelated clusters of skills and abilities.

Category D: *Creative and dynamic exploration of design ideas, including strategic decision making, synthesis and collaboration to achieve complex design solutions contributing to society in general*

The very dark background surrounding the elements of knowing, doing and being indicates the significant presence of the external environment; the solid connecting line symbolises the extent of integration; the size of the shapes indicates the prominence of these elements in the curriculum and the curved lines indicate the flow of design activities with the one feeding off the other.

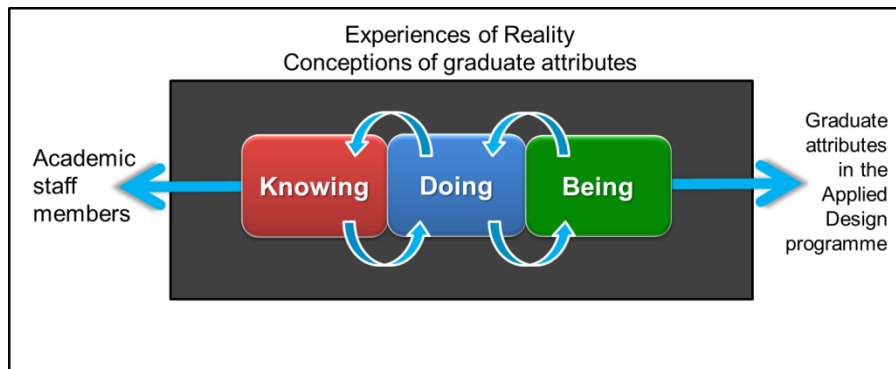


Figure 4.11: Category D: Diagrammatic representation of the relationships illustrating the experience of the phenomenon

In this category of description, the curriculum is regarded as an evolving process with a dynamic interaction between the academic staff members, students and external influences to form a coherent structure. Students engage with the professional identity of a designer in the fullest sense of the word, showing a deeper engagement with contextual issues (e.g. historic, economic, social, political, legal, cultural and environmental) that influence the design process. Graduate attributes are developed as interwoven capabilities in a synergistic relationship between the key elements of design, technology, techniques and materials in the curriculum. Generic graduate attributes such as communication, information, digital literacy and skills, problem solving, critical and creative thinking and research skills are integral and transformative components of the curriculum. Design inspiration relates to a deeper understanding of current trends, an understanding of market forces and strategic decision making, and an acute awareness of seeking opportunities amidst uncertain conditions. The personal characteristics of designers, as summarised by Nigel Cross (2011:12, 13) in his book: *Design Thinking: Understanding how designers think and work*, relate to the qualities, abilities and attributes associated with this category of description, are explained as follows:

One of the characteristics of these people, they suggested, is that they are very open to all kinds of experiences, particularly influences relevant to their design problem. They are sensitive to nuances in their internal and external environments. They are ready, in many ways, to notice particular coincidences in the rhythm of events which other people, because they are less aware and less open to their experiences, fail to notice.

These designers are able to recognise opportunities in the way coincidences offer prospects and risks for attaining some desirable goal or grand scheme of things.

Successful designers are optimists, exploring hopefully, dedicated to the task in hand. And, like all good explorers, they are opportunists, taking advantage of any unexpected openings or vantage points, and spotting what look like fruitful ways ahead.

In the section that follows, key elements of this category of description are provided with supporting evidence in the form of illustrative quotations.

Bowden and Marton (1998:26) argue: “The future is, necessarily, always unknown but there are degrees of uncertainty. We would like to argue that the future we are preparing our students for is becoming less and less transparent, or more and more unknown. And what are the tools we can use? They are our knowledge, what we know and what is known. So, we are trying to prepare our students for the unknown by using what is known.” In an age of uncertainty, the conceptions of academic staff members in this category of description show a dynamic interaction between the HE teacher, students and external influences. In the focus-group session attended by Fashion Design academics, a staff member related a conversation that she had with students in class to the rest of the group. Her words, following below, point to the educational challenge of preparing students for an unknown future:

... I'm sure everybody in this room has actually made the statement: ... one day when you're in industry, you're going to have to be able to write this way [or] once you're in industry you're going to have to know this [or] once you're in industry ... A student turned around to me ... and he [student] said to me, but one day when I'm in industry I'm going to be the client ... that actually shocked me rigid, because up until that point I was thinking, I'm preparing you [the students] for the industry that I [the HE teacher] was prepared for ... [Fashion Design participant]

This encounter made her question the way this educational challenge should be approached:

It is the era of zip drives and are we really honestly preparing them for the clients in the industry they are going to enter, or are we still to a certain extent preparing them for the industry we [academic staff] believe? And that's what's shocking, because what industry is going to be in five years given global trends, given technology, I don't even ... nobody knows. It is – the change is so, so rapid that I think we actually need to question everything that we do. [Fashion Design participant]

During the same focus-group session, another participant echoed these sentiments by saying:

And I also – what you were saying about knowledge there's also a revolution going on with information and the way I was taught and the way I learnt is so different to the way people are learning now. Knowledge is totally different so it's flexible. It's not in books. [Fashion Design participant]

Other participants suggested the following as appropriate ways of addressing change:

[The curriculum] ... it must be flexible. It's merely a skeleton that you're giving the student. It's a kind of stepping stone and a guide that you're giving the student. The student must have a voice so therefore that freedom of selection, freedom of speech if you like, freedom to create must be there. [Graphic Design participant]

I'm constantly revising my own syllabus ... to make sure that I bring in new issues all the time ... [Fashion Design participant]

... also if the curriculum is contemporary and that it's relevant for what's going on now in the world and therefore is evolving and changing – it's not a static thing, it's flexible ... [Fashion Design participant]

... curriculum is not merely a text document ... curriculum is a social construct ... [Surface Design participant]

... as a person that you need to adapt constantly. [Surface Design participant]

So it's equipping them to deal with the technology, social media, all those platforms that are already out there, they're practising and it's real live, it's out there in the world. [Fashion Design participant]

... encourage students to participate in practical applications ... see the gap in the market and again its strategic ... to be aware what's happening out there, to see a place where I can make a living ... [Professional Practice & Business Studies participant]

...identifying the gap in the market place or reading the market place ... [Fashion Design participant]

... [the] main focus of [my] teaching [is] to transform individual to be a strategic thinker, a graduate who will be able to earn a living – important – I think that's where the whole entrepreneurial thing comes in. [Professional Practice & Business Studies participant]

From a design perspective, learning for an unknown future calls for an engaged curriculum (Barnett & Coate, 2005) of which the primary focus is the development of a repertoire of interwoven capabilities¹⁰. Cross (2011:8) defines the act of designing as “very developed forms of certain tacit, deep-seated cognitive skills” which he describes as “one of the highest forms of human intelligence”.

Figure 4.12 illustrates the dynamic interplay of elements in a fashion design process, which Cross (2011:8,10) describes as a mysterious, yet complex process based on “abductive thinking”, calling it “a type of reasoning different from the more familiar concepts of inductive and deductive reasoning, but which is the necessary logic of design. It is this particular logic of design that provides the means to shift and transfer thought between the required purpose or function of some activity and appropriate forms for an object to satisfy that purpose.” This academic staff member alludes to this tacitness of the design process by commenting:

¹⁰ Capabilities are described by Stephenson and Weil (1992:2) in Yorke (1999:16) as people who have confidence in their ability to take effective and appropriate action, explain what they are seeking to achieve, live and work effectively with others, and continue to learn from their experiences, both as individuals and in association with others, in a diverse and changing society.

... the work that we do and the knowledge that we try to instil in students, often it's not something that is a written and a theoretical component ... it's like Art, it's a feeling ... it's non-verbal communication. It's if you draw the line this way or that way it makes a difference and it's not something that you can explain and put on a piece of paper ... [Fashion Design participant]

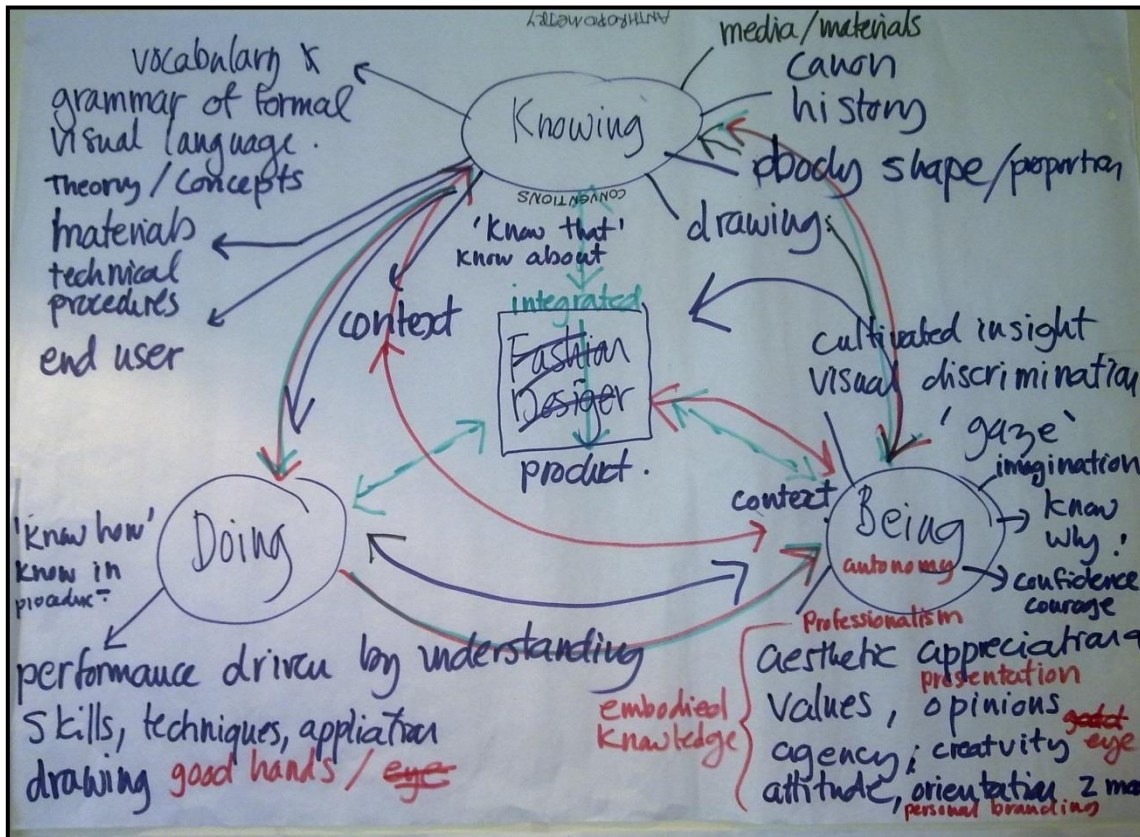


Figure 4.12: Concept map of design process produced by academic staff members in a Fashion Design focus-group session

Cross (2011: 12) indicates that designing is difficult “to conduct by purely internal mental processes; the designer needs to interact with an external representation”. The activities of sketching, drawing or modelling are important mechanisms to explore ideas, to clarify thoughts and to support the “dialogue” that the designer has between problem and solution (Cross, 2011:12). The following Applied Design staff members echoed the same sentiments by saying:

... drawing skills are very important ... so is real communication. It would start with conceptual drawings where you actually draw a concept for somebody then you will want illustration drawings and then you also have your technical drawings. Now all these drawing skills are mechanisms to communicate what you're actually doing. That actually embodies design to us – that's what you are doing. [Industrial Design participant]

I found that the best designers ... are in fact the people that are the best illustrators, because there's an understanding of the spatial. There's if you just take an A4 [paper] or an A0 size [paper] and you give some person three layers of information to impart on that A0 size [paper] someone with a good illustrative technique will do a much better job than someone who doesn't have a good illustrative technique. Because they

understand spatial, they understand prioritisation and there's just something more ... [Graphic Design participant]

I think the importance of the techniques is that it's ... within your library whether you become an illustrator or not ... but it's once you understand images and how they work and what colour does and composition and all those things it's just part of your library and just an essential quality ... [Graphic Design participant]

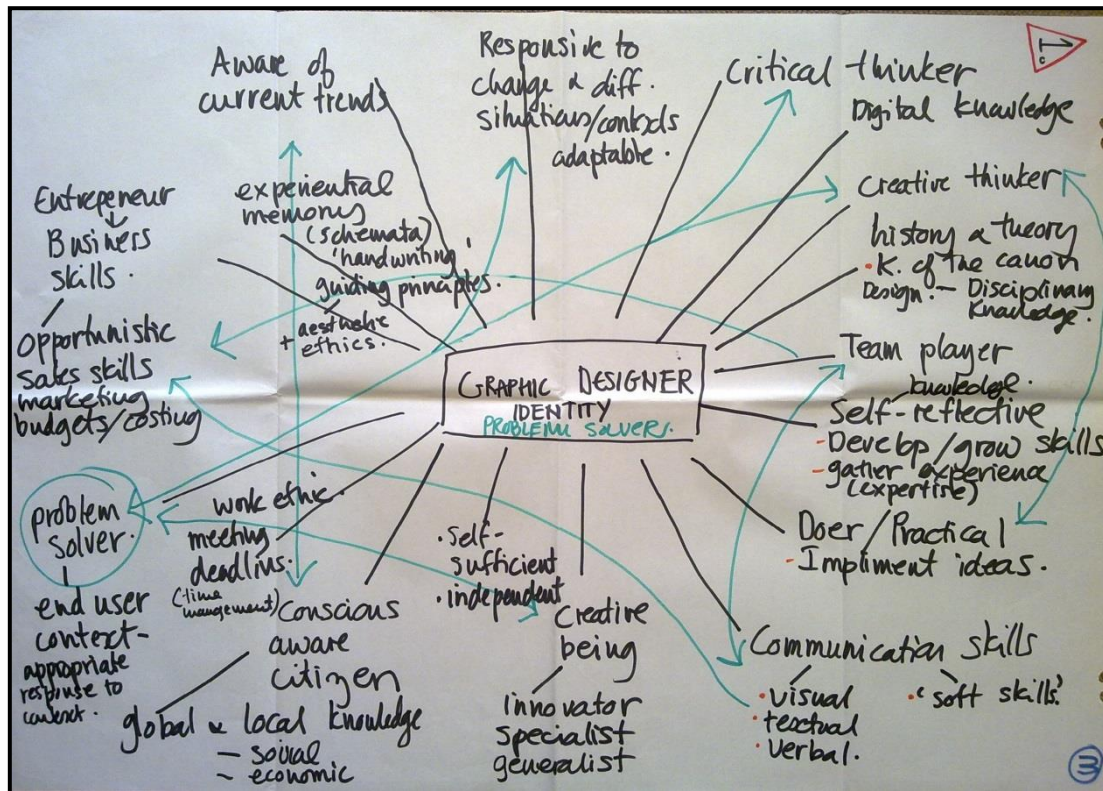


Figure 4.13: Concept map of the identity of a Graphic Designer produced during a focus-group session by Applied Design staff members

The interwoven capabilities of knowledge (knowing), skills (doing), and attributes and qualities (being) in design (see **Figure 4.13**) shape the identity of designers as defined by this participant during a focus-group session:

First of all, we say that Industrial Design identity has to do with aesthetics and the usability of objects. We said another identity element would be that Industrial Designers are team players but they are also team leaders and we said that they have to be good communicators, verbal and visual. They are translators but they're also, they're a transformer of ideas. So they would be a translator of actually understanding what the idea is from the client and then they would actually transform it into a physical object. [Industrial Design participant]

Students engage with the professional identity of a designer in the full sense of the word, with an acute awareness of contextual issues (e.g. historic, economic, social, political, legal, cultural and environmental) that influence the design process. This Industrial Design participant indicates that contextual issues also relate to micro, meso and macro levels, as well as to different timeframes:

We thought it is important to emphasize when you talk about context - it is actually to bring the past, the present and the future into this whole schematic [representation] of the design programme [concept map] ... while also acknowledging that the context relates to different levels of engagement. We have a local level, a regional level and a global level. We think it's quite important that ... people realize we're working different time periods as well and different areas.

This Industrial Design participant uses an analogy to describe the contextual aspects in the curriculum by stating: "... context is the ocean out there and design is your boat ...". He also stresses the interrelatedness of these contexts by saying:

... that's kind of why I brought the whole ocean analogy in ... it's because all of these components in some kind of way they are related. I mean the economics are tied to the legal and if we take for instance the legal and the ethical sides, there's two things that work together. [Industrial Design participant]

Graduate attributes are developed as interwoven capabilities in a synergistic relationship between the key elements of design, technology, techniques and materials in the curriculum as indicated by this Industrial Design participant when describing the concept map that the group had developed during a focus-group session:

... the designer might move between so many different contexts, but it's important to be aware of certain things ... I mean, in order to do things we need to know certain things ... to realise they need a strong theoretical grounding, a whole background in design technologies, materials and systems and people, the context ... and then within the context ... it's not just the cultural context and the social context but the business as well. So they need to know again it also relates to their place within the world and then in order to know that and in order to understand business, there's specific things that they need like various forms of literacy, numeracy, visual literacy, information literacy, which also relates to communication.

They need a good understanding of human factors of again, system; in order to do design they need to also then understand drawing standards, the colour, sustainability issues. They need to have a good design vocabulary ... because of the amount of people that designers deal with, whether it's engineers, they need to be able to speak about the design within industry. They need to be able to speak to possible users and again those users are so varied and also in different contexts.

And then we can tie it back to the cultural ideas of what they need to know because the socio-political, economic, the technological and that's to do with trends. They need to know economic patterns, environmental and legal aspects. So they need to know issues around the macro environment and then also within micro environments. [Industrial Design participant]

Generic graduate attributes such as communication, information, digital literacy and skills, problem solving, critical and creative thinking and research skills are integral and transformative components of the curriculum. The following excerpts from discussions with academic staff members regarding generic graduate attributes show how important these are in preparing students for a competitive workplace context:

... and then also this links up with communication again, inter-personal relationships that when they [students] go out into business that they [students] know how to deal with their colleagues in a team situation. That they [students] know how to work with bosses, especially difficult bosses. How to work with clients [and] that they can be just

as difficult. So that links up again with personal skills, knowing about yourself ... so that they [students] are more rounded in themselves and have self confidence. [Professional Practice & Business Studies participant]

They [students] need to be a good communicator and motivator. They need to motivate themselves, just like we were touching on earlier about designers in industry, often they end up working for themselves. So they need to be able to motivate themselves, but they also might manage a small group in which case they need to be able to motivate others. They need to be an analytical and critical thinker and resourceful and most of all it ties into, they need to be creative. They need creative ways to solve problems and to access resources and use resources efficiently ... [Industrial Design participant]

... because things are moving at such a fast pace, it's very difficult these days to train people in terms of knowing what skills they're going to need in a specific industry, which brings a lot more focus on the actual life skills that you [refer to a graduate] need. You [a graduate] need to be someone that can be flexible that can solve problems that can communicate that have people skills, that have sensory awareness so that you [a graduate] can actually become a real asset to a company or to the industry if you [a graduate] work for yourself.

In this category of description academics' conceptions of graduate attributes indicate that design inspiration relates to a deeper engagement with current trends, an understanding of market forces and strategic decision-making, and also to an acute awareness of seeking opportunities amidst uncertainty as indicated by the accompanying statements. Economic, environmental and social responsibilities are important considerations as expressed by the participants quoted below:

... I think ultimately design is not produced in a vacuum ... [Fashion Design participant]

Well it's about ... not simply thinking well I can make things and that's my [student] role, your role's bigger. Yes, you [student] make things but why do you [student] make things? What do those things contribute? What do they mean and what is their legacy? [Fashion Design participant]

... stop and review what you've done ... students actually need to consider what they produce for a global market ... a sense of responsibility and also I think accountability ... [Fashion Design participant]

We [academic staff] felt that in the end we [academic staff] would be producing designers that are economically, environmentally and socially sustainable in their approach. They need to be able to keep in mind the movement towards sourcing fabrics or materials that are sustainable, that are not going to deplete the environment. [Surface Design participant]

The next participant emphasises the important role that design should play to enhance the living conditions of all, by stating:

... they [students] need to develop entrepreneurial and business skills for social design and global design ... [there is] a strong movement towards making life easier for the bulk of the population and I would also see that as being strongly relevant within the African environment ... [Surface Design participant]

Summarily, the characteristics of this category of description indicate not only a shift towards inter- and multidisciplinary, but a deeper engagement with diverse influences to achieve complex design solutions with enduring qualities, eventually making a positive impact within a larger context.

4.6. Outcome space

As indicated earlier, the outcome of a phenomenographic analysis is an outcome space consisting of the collection of understandings, or a finite set of categories of description among the participants collectively, and not the individual opinions held by individual participants. The value of using a phenomenographic approach in this research is the ability to create a holistic, landscape of awareness that encompasses diverse perspectives that distinguish the critical features of this landscape of awareness (Daly *et al.*, 2012:193), while simultaneously the researcher highlights the relationship among these variations. Laurillard (1993:36 in Smith, 2010:143) argues that there are three types of outcome space, namely:

- An inclusive, hierarchical outcome space in which a more sophisticated perception will logically include preceding levels of a lower order;
- An outcome space in which the different perceptions are not related to each other but to the history of participants' experience of the phenomenon;
- An outcome space which defines a development progression, where each successive perception, in a manner similar to the progression defined for scientific theories, has more explanatory powers than others, and thus could be seen as an improvement or being better than the previous perception.

The outcome space in this research is inclusive and hierarchical in nature, with conceptions in each increasingly complex category subsuming and extending upon the understandings of the preceding level. A higher level, or more complex conception, can also incorporate elements of lower conceptions. **Table 4.3** provides a description of each level within the outcome space related to academics' conceptions regarding the development of graduate attributes in Applied Design programmes.

Table 4.3: Description of levels of outcome spaces

Level	Description of level	Example	Conceptions of academics re graduate attributes
3	Graduate attributes are enabling and transformative in nature extending beyond the scope and depth of the curriculum into the world of work and society in general.	For example: Using a range of advanced communication skills, including oral, visual and written formats enables students to reach a wider audience. The notion is that these skills are enabling mechanisms to achieve complex design solutions and to function effectively as designers in wider context.	Category D: Creative and dynamic exploration of design ideas, including strategic decision making, synthesis and collaboration to achieve complex design solutions contributing to society in general.
2	Graduate attributes are mechanisms to enhance problem-solving ability and to find appropriate solutions.	For example: Using oral presentation skills enables students to communicate design solutions to clients in an effective manner. The notion is that these skills are complementary to other components of the programme to enhance the design students' abilities to function effectively in the programme.	Category C: A broad conceptual and contextual underpinning supports the development of graduate attributes appropriate to a changing workplace context. Category B: Situational awareness and responsiveness to various needs with a concerted effort to strengthen the link between technical and creative aspects of the design process.
1	Graduate attributes are regarded as isolated elements of the curriculum and are often not well integrated.	For example: Using basic communication skills as a precursor to the execution of a design project. The notion is that students must acquire these skills either prior to entry or in their own time (outside the classroom). It is often regarded as not being "part of the syllabus of my subject" and therefore "not my problem", yet the conception is held that students should possess these skills to be successful as students.	Category A: Competency-based, task-oriented approach towards the development of technical skills within a given situation.

Table 4.4 indicates the outcome space of academics' conceptions of graduate attributes in Applied Design programmes. The outcome space shows the relationship between structural and referential aspects with the hierarchical order of structural aspects, namely: isolated, interlinked, interrelated and interwoven, and the referential aspects of internal and external relationship, individual or collaborative focus and ranging in context from specific to complex and dynamic.

Table 4.4: Outcome space of academics' conceptions of graduate attributes in Applied Design programmes

		Referential aspects (what is meant)	
		Internal, individual focus within a specific and limited context	External, collaborative focus within a complex and dynamic context
Structural aspects (internal and external horizon)	Isolated ¹¹ Graduate attributes are considered in isolation with emphasis on mastery of technical competencies for a particular application	Category A Competency-based, task-oriented approach towards the development of technical skills aimed at a particular end product	
	Interlinked ¹² Graduate attributes, with emphasis on creative and technical skills are interlinked to produce a product for a given situation	Category B Situational awareness and responsiveness to various needs with a concerted effort to strengthen the link between technical and creative aspects of the design process	
	Interrelated ¹³ Graduate attributes are regarded as interrelated clusters of creative, technical, conceptual and personal skills and abilities to diagnose and solve design problems within a workplace context		Category C A broad conceptual and contextual underpinning supports the development of graduate attributes appropriate to solving design problems in a workplace context
	Interwoven ¹⁴ Graduate attributes are viewed as a repertoire of interwoven capabilities that has transformative potential to address complex design-related issues within a larger context		Category D Creative and dynamic exploration of design ideas, including strategic decision making, synthesis and collaboration to achieve complex design solutions contributing to society in general

¹¹ If you isolate something such as an idea or a problem, you **separate it from others** that it is connected with, so that you can concentrate on it or **consider it on its own** (Collins Cobuild English Dictionary, 2001:831)

¹² Things that are interlinked or interlink **are linked with each other in some way** (Collins Cobuild English Dictionary, 2001:818)

¹³ If two or more things interrelate, there is a connection between them and **they have an effect on each other** (Collins Cobuild English Dictionary, 2001:820).

¹⁴ If two or more things are interwoven or interweave, **they are very closely connected or are combined with each other** (Collins Cobuild English Dictionary, 2001:821)

4.7. Categories of description: Academics' orientations towards the development of graduate attributes in Applied Design curricula

The data analysis process revealed three increasingly complex, qualitatively distinct categories of academics' orientations in terms of embedding graduate attributes in these Applied Design programmes as listed in **Table 4.5**. The orientations of academic staff members in Applied Design at the site of investigation vary along several dimensions such as:

- The mental model as defined by Entwistle and Peterson (2004:418) based on how the knowledge and skills are used by students, e.g. construction of knowledge, application of knowledge and reproduction of knowledge.
- Cognitive processing, ranging from a surface approach to deep approach to learning as defined by Marton and Säljö (2005:43);
- Regulation of learning including internally or externally regulated learning, which also links to students' levels of motivation (Entwistle & Peterson, 2004:418).

The nature of these relationships has consequences in terms of students' learning and will ultimately influence students' capabilities to function effectively in industry, but also as responsible citizens in society in general.

Table 4.5: Applied Design academics' orientations towards achieving graduate attributes in their curricula

Category A	Category B	Category C
HE teacher-has a controlled approach to teaching and learning with students focusing on the development of high levels of technical competencies	HE teacher is accommodating the students' needs in the teaching-learning process	Mutual understanding and shared responsibility between HE teacher and students to deepen the learning experience

Each category of description is described in more detail in the section below, while supporting evidence in the form of illustrative quotations is provided in each category. The description of each category is handled in a similar manner as previously described in this chapter, and consists of the following:

- The **label** of the category.
- The **diagrammatic representation** of the subject-object relationship.
- A **concise description of each category** supported by a **collection of illustrative quotations**.

Category A: HE teacher-controlled approach to teaching and learning with students focusing on the development of high levels of technical ability

The size of the three circles indicates the orientation of the academic staff members towards the students on the one hand, and the development of graduate attributes through the design curriculum on the other, as well as the role of the HE teacher in this regard. The connecting line symbolises the extent of collaboration and integration. In **Figure 4.14**, the role of the HE teacher dominates the relationship.

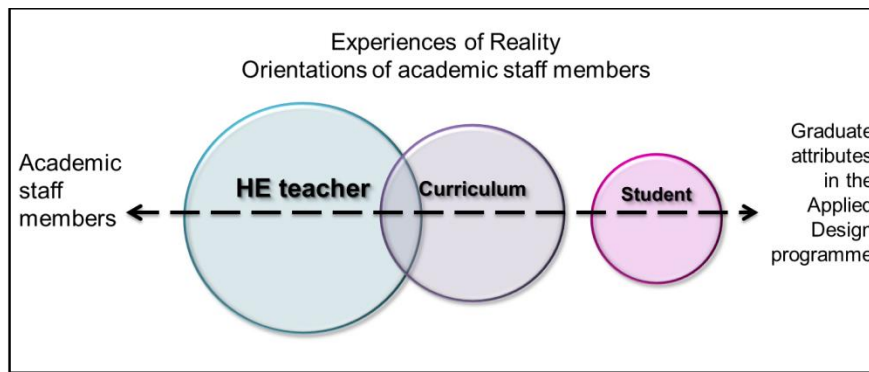


Figure 4.14: Category A: HE teacher-controlled approach to teaching and learning with students focusing on the development of high levels of technical ability

In this category of description, the role of HE teacher is prominent in determining how the development of graduate attributes through the curriculum will be approached. The primary focus is to ensure that students are competent and employable as indicated by this participant:

I need to know what a [field of study] designer needs at the end when they go out of the institution. Would they be actually employable and therefore I would – I personally would then say, well I think, we need such a such, a such a such a such and I would look at time management, problem solving, critical thinking, reflective thinking, reflection. I would think of well a certain ethics etiquette and things like that, values etcetera and I would say how do I get them to understand this as students and I would say well alright what do I set? How do I set the brief in such a way that I'm not spelling out to them that I want you to you know, open the door and allow somebody to go through it or remember that you should be doing that if you're in the workplace. [Graphic Design participant]

In theory subjects, the academic staff members adopt a transmission approach to their teaching by delivering a large body of subject content to students whose individual learning needs are often ignored in the process. In response, students resist this way of teaching by avoiding engagement with the subject content by either adopting a passive-compliant mode (Light, Cox & Calkins, 2009:29), or a surface or reproduction approach to their learning as defined by Marton and Säljö (2005:43). This focus group participant relates her own learning experience as a student, before joining the academic department as an academic staff member, indicating how negatively this particular orientation impacts on students' learning:

Textiles, it was a bible this thick. It was so scientific ... I couldn't get my head around this lot ... it was horrendous and I actually missed out a lot because I took that [Textiles] book of mine and I threw it in the bin. [Fashion Design participant]

In practical subjects, academics often approach their teaching as the training of competency-based skills, seeing students as technicians who have to follow a set of predetermined requirements in executing a design task. As a result, students lack initiative, as indicated by these statements:

... we [staff] had the same kind of feeling about students, their attitudes, the way that they look at life these days. They [students] don't really go out and gather the information. They wait for things to come to them. [Fashion Design participant]

Students are scared to actually take what you've [academic staff members] given to them and go and explore different places and because we're [academic staff members] pressed for time we [staff] don't always get the chance to give students that ability to go and explore and to open up a little bit more.

In practical subjects the HE teacher attempts to control the learning process through project briefs containing detailed specifications on how students should execute design tasks. A number of participants mentioned that the emphasis on the development of high-level technical skills in these particular Applied Design programmes enhanced the employability of students. They commented as follows:

... the course is known for and sought after for its technical excellence ...[Jewellery Design].

... you know, the old Technikons (and I know I shouldn't say this) had a niche in the market, we were successful at what we did ... and yes, I know we have to have a broader academic base, but we mustn't lose that special something we give to the market just because we're now a University [of Technology]. That's my own personal view. So I don't want us to drift too far away from what we do well. [Theory and History of Design participant].

Yet on the other hand, overemphasising practical work, with less attention being paid to the development of the underpinning conceptual knowledge to support critical thinking skills, can also be problematic, as indicated by one of the participants:

... and I get the impression that ... they [staff members] are so involved with and successfully involved with their practical, their studio work, that they don't always necessarily have an antenna for the research, the academic aspect, that if we want to, if designers are going to change and improve the world, that they need to do research, they have to be thinkers, they have to be philosophers, they have physiologists, they have to be psychologists, you know. Yet, some people become so involved with the actual designing of things ... [Academic staff member teaching across a number of Applied Design programmes]

Many of the academics view the subjects they teach in isolation, without recognising the importance of developing conceptual aspects in the curriculum as spirals of complexity, and of synthesis progressing from the first year to third or fourth year of the programme. This

participant, referring to a particular theory subject in the Graphic Design programme alludes to the same problem:

There [in a particular subject] is nothing there, there is absolutely nothing there and each level seems to repeat itself and my argument ... and this has been my gripe for years ... please, let's have a stepped up curriculum where you can actually work with your students at the basic level – what do they require – how do they think professionally? And then the next level up, and then the next level up, and then the next level up and so on.

Other focus-group participants, when describing the technical aspects of the programme, admitted that their orientations towards the development of graduate attributes result in poor integration between theory and practice, by acknowledging:

... I think the basic problem for us [is] that there's a huge chasm between theory and practice ... we have tried to integrate it ... it's hard for us to marry theory and practice ... [Fashion Design participant]

... the students especially in first year level, they find it difficult to link all those subjects, taking it from business side [theory subject] down to garment construction [practical subject]. So it's quite difficult for us to actually – we're trying to – but they don't see the linkage between all the subjects. [Fashion Design participant].

The imbalance of theory and practice as well as lack of integration can be contributed to the orientations of academics towards theoretical components in these programmes, as pointed out by one participant:

One of the things that I've noticed over the years is we very often talk about the practical staff not being willing to engage with theory staff, and I think that there is an underlying need to look at that ... we come from a Technikon background, many of the staff members who teach on a practical level do not have a very strong theoretical basis. Many of them come straight out of industry and do not have a strong theoretical basis and I think that is also something that we need to look at because I think that influences the mind-set and it also influences whether somebody wants to engage with the strong theoretical content. [Theory and History of Design participant].

Tight deadlines, time constraints and large groups of students also jeopardise attempts to integrate theory and practice, as pointed out by this participant:

Within this specific subject we find timelines is a big issue because we work with great numbers of students your hours become less and less. So the real transfer of knowledge becomes the typical outcomes based. They race towards the end product and not really grasping what you're trying to teach them in between. It makes our life difficult to actually do that reflection on the learning process ... [Fashion Design participant]

Integrated assessments (e.g. capstone projects) were suggested as a possible way to enhance integration between theory and practice, as pointed out by this participant:

... you need to integrate it [theory] with your design projects sometimes, which isn't happening, so I was thinking, okay, how can we get around this? And we've spoken about capstone projects, maybe the students are doing like seven design projects a year, they do three capstone projects where you look at everything in absolute detail so that there they get the application of contextual analysis and the design theory

integrating into that project very thoroughly and specifically. [Theory & History of Design participant].

Another participant suggests that co-teaching arrangements could be another way of integrating theory and practice, but also warned that such arrangements are less successful if academics are standing on the periphery:

You know, at first year and second year level, often the students have been given assignments where they write a theoretical, give a theoretical component to a practical element that is being marked as a theory project, or a history project ... [however] it's not a co-teaching scenario where the person from the practical subject or theory is not brought into the fold to help in the process. [Theory & History of Design participant].

The students' learning experiences and personal preferences (e.g. choice of design projects) are seldom accommodated in the development of graduate attributes, which again impacts on the students' development of a sense of personal style and identity. Academics adopting a teacher-controlled, compliance-based orientation towards the development of technical abilities also regard the development of generic graduate attributes as largely irrelevant in the context of the subjects they teach. Generic graduate attributes such as developing academic writing skills are isolated components of these programmes and integration is often left to the mercy and goodwill of academic staff members who are willing to cooperate, as indicated by this participant:

... the problem is still that because the studio subjects ... are so dominating ... that depending on the attitude of the particular lecturer you know, I either get their co-operation and they appreciate what I'm doing and I'm working very well with them or I'm still instinctively been pushed aside.

In summary, the theoretical components of the curriculum (knowing) are separated from the practical components (doing), mainly in terms of the way HE teachers approach their teaching. As a result, students are not able to integrate theory and practice when design tasks require a demonstration of technical competence. The students' learning is mainly extrinsically motivated and aimed at the production of end products or artefacts (e.g. drawings, garments, models), using predetermined requirements and clear instructions provided by either the academic staff members or technical assistants. The main objective is to complete the task at hand with a high-level of technical ability and competent use of equipment, tools, techniques and software programmes.

Category B: HE teacher is accommodating the collective needs of students in the teaching-learning process

The size of the three circles indicates the orientation of the academic staff members towards the students on the one hand, and the development of graduate attributes through the design curriculum on the other, as well as the role of the HE teacher in this regard. The connecting line symbolises the extent of collaboration and integration. In **Figure 4.15** the HE teacher's role is still prominent, yet the needs of students are accommodated to some extent, influencing certain aspects of the curriculum.

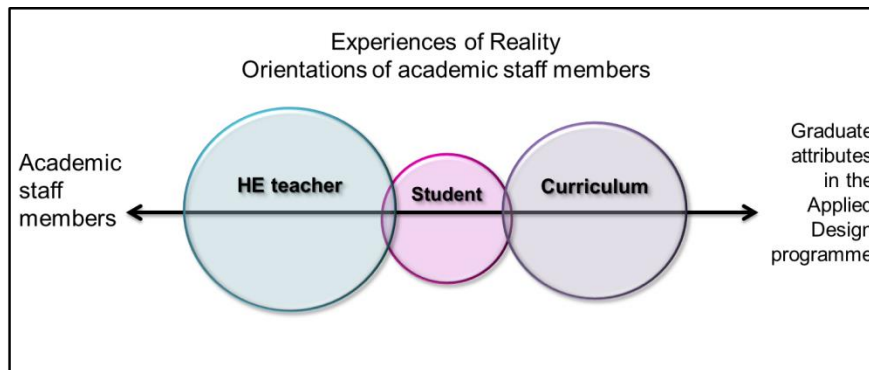


Figure 4.15: Category B: HE teacher is accommodating the students' needs in the teaching-learning process

In this category of description, the role of the HE teacher is still prominent in determining the development of graduate attributes through the curriculum, but the collective needs of students are accommodated in the teaching-learning process, as stated by the following Graphic Design participants during a focus-group session:

... the only way I [HE teacher] can see a student gaining any form of knowledge whatsoever is with student-centred learning ...

... the curriculum actively engages the student in the learning process and ... the role of the student ... to be actively engaged, critical and responsive ...

It [curriculum] provides a fit between industry, workplace needs and academic offering. It needs to be responsive to changes in broader context and the HE teacher should be involved in keeping the curriculum relevant, responsive and applicable and also in keeping it alive ... students need to engage in curriculum, they need to feel a sense of participatory ownership over it. They must feel integral, central to the curriculum and they should trust that the curriculum will prepare optimally for entry into the work place.

The teacher should be the facilitator to encourage and also exemplify learning and constructive engagement so as to empower the student with their creative energies.

The following excerpt from an interview with one of the participants in this research project is an apt illustration of the student-centred approach:

And I will never forget in the very early days of ECP [Extended Curriculum Programme], I think it was actually in the first year of ECP I took for granted that every single student sitting in that room understood what the word "portrait" meant. I mean, I didn't even hesitate to use the word and it goes about a dual function in a sense, but I didn't hesitate to use it and suddenly a hand went up very nervously and said: "Miss, what do you mean by portrait?" And I was caught, on my feet, I had to start thinking what do I mean by portrait, what this portrait meant, where does it fit into context and how do I

explain this part of the content ... and then I started realizing that you start your curriculum from scratch and that's what you do. [Graphic Design participant]

To this end, certain aspects of the curriculum are adapted to enhance the application of knowledge, to increase experimentation and exploration of design ideas, and to improve integration between theory and practice. The HE teacher's orientation towards the curriculum becomes more flexible and students' learning is not merely a reproduction of facts and ideas, but an interactive process of visualisation, problem-solving and experimentation as indicated by one of the participants:

It must be flexible. It's merely a skeleton that you're giving the student. It's a kind of stepping stone and a guide that you're giving the student. The student must have a voice so therefore that freedom of selection, freedom of speech if you like, freedom to create must be there. How do they interpret what you've actually written there? What you've spoken to them about or what you've shown them. How do they come forward by adding to that, themselves? They have to add to it, they can't give you back a copycat situation or regurgitate what you've written on paper. If they do that it means that they cannot – well they cannot problem solve, they cannot critically think. They cannot have a confidence within themselves to in a way sustain themselves in future. So you're teaching them how to think, react as well as producing what is needed ... [Graphic Design participant].

The HE teacher is making an effort to make tacit or situated knowledge more explicit, as indicated by this participant:

... we [academics] have certain problems that come up ... to stop blaming the students and say how could we possibly do things differently to make knowledge more explicit? Obviously there are different kinds of knowledge and certain kinds of knowledge lend themselves to be transferred in the more explicit manner but I honestly think if we – it will take it from us [academics] to really work to try and bring a lot of that tacit knowledge to the surface. So if we are more conscious of that knowledge and how one can sequence that knowledge over the curriculum, I think that we can really help our students. [Fashion Design participant]

Although technical competencies are still important, HE teachers use innovative ways to integrate theory and practice for enhancing students' employability. These would include factory visits, inviting guest lecturers from industry to address students, virtual or simulated projects, participating in design competitions, creating problem-based and project-based learning opportunities, and even placing students in industry to experience workplace-based learning.

In summary, the focus is on teaching as a student-centred process to enhance the development of graduate attributes in a more integrated way through the curriculum. Implicit in this orientation towards the development of graduate attributes is the student as an active learner and designer, willing to discover new learning opportunities and prepared to experiment with design ideas, rather than merely working towards technical perfection as in the preceding category of description.

Category C: *Mutual understanding and shared responsibility between HE teacher and students to deepen the learning experience*

The size of the three circles indicates the orientation of the academic staff members towards the students on the one hand and the development of graduate attributes through the design curriculum on the other, as well as the role of the HE teacher in this regard. The connecting line symbolises the extent of collaboration and integration. In **Figure 4.16** a dynamic and collaborative relationship exists between the HE teacher and the students, with both parties contributing towards a holistic approach for the development of graduate attributes through the curriculum.

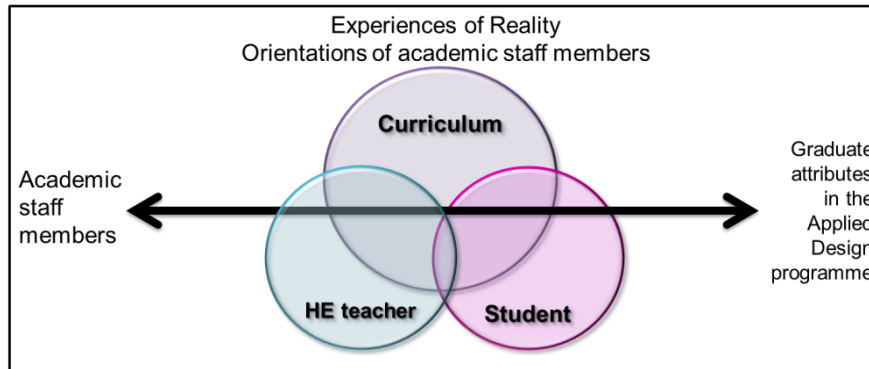


Figure 4.16: **Category C:** Mutual understanding and shared responsibility between HE teacher and students to enhance the learning and teaching environment

In many ways this category of description with its pertinent focus on student-centred learning is similar to the preceding category. However, the focus has shifted away from the HE teacher to the development of graduate attributes as a shared responsibility between the HE teacher and students. The focus is on how students interact with the learning experience in its totality, and how, through this dynamic and collaborative process graduate attributes are developed in an integrated, holistic manner, as indicated by the following participants:

Your curriculum is an integrated system. It's integrated. It's got no other way of being put forward because without it being integrated and literally crossing over the various fields of study or the various subjects ... the student is lost ... [Graphic Design participant].

Students are the heart of the curriculum. They help teachers develop the curriculum to better it for future students. Student feedback and evaluation help develop the curriculum. [Graphic Design participant].

... the student ultimately does acquire the disciplinary knowledge, skills and professional identity, acquire a particular orientation to meaning or a voice so that they can learn how to think like a designer ... [Graphic Design participant].

In this structure of awareness students' engagement in learning is not restricted to the formal learning experiences of the programme; on the contrary, it extends into the workplace, community and society in general. Teaching forms part of a lifewide and lifelong learning experience, as described by the following participant:

Curriculum is a guiding principle ... and then I see the teacher is the guide, using curriculum to induct students into an academic and exploratory path. I see teaching as something that happens from a very much a personal perspective, but also very much

an inter-personal and inter-subjective perspective, where you have to really be ... intuitively open to the needs and what the student needs. So that you can respond in an open and authentic way to that ... [Surface Design participant].

This holistic approach towards the development of an integrated set of capabilities allows students to manage and evaluate their own development as designers, solve complex problems, take advantage of opportunities, behave ethically and with social responsibility and grow confidence in themselves as designers that can bring about change as indicated by the following participants:

You need to be someone that can be flexible that can solve problems that can communicate that have people skills, that have sensory awareness so that you can actually become a real asset to a company or to the industry if you work for yourself. [It is] not just about designing another curriculum where you teach more Graphic Designers or more Textile Designers, but you actually have a different output that ... they do understand the value chain, they actually can see how to fit in and see other opportunities, develop sensory awareness, understand more different target markets and things like that. [Surface Design participant].

What I'm after mostly as a thinker, so I'm saying you've got all this incredible talent: What are you going to do with it? ... because you have to make a difference out there ... so all these skills basically all do fall into one good person and you want to develop that agency ... [Graphic Design participant].

I mean, it's about the way the real world works, but it doesn't stop there. In order for students to be able to be change agents, they must first know how it works and then question: "Is this in fact the world that we want to live in?" Then they become quite powerful [change] agents ... [Graphic Design participant].

The next focus-group participant touches on the development of an ethical disposition as an important graduate attribute, by saying:

... we [academic staff members] develop students who are adaptable ... responsible and able to function on an ethical level ... [Surface Design participant]

The design experience is embodied in the way students act with sensitivity as designers in a broader context, as pointed out by this industry participant who attended one of the focus-group sessions as external moderator of the programme:

We are looking for slick, current people who are self-aware, we know how competitive it is out there, we're very cognisant of that ... so the more hard-working, the more explorative, the students are about the industry they're going into, the research they do, they must do their homework ... [Graphic Design participant].

In summary, the orientation of academics towards the development of graduate attributes in this category of description is based on how students embody the lifewide and lifelong design experience within the broader societal context to bring about sustainable change. Within this learning experience, academics focus on how the intellectual, practical and creative resourcefulness and the capacity of students can lead to change that would better prepare them for future challenges. This orientation towards the development of graduate attributes relates to the notion of "immersive experiences" described by Campbell and Jackson

(2011:194) as providing rich environments for developing a range of self-knowledge, understandings, dispositions, qualities and capabilities that are essential for current and future survival, and for adaptation in a complex, unpredictable and often disruptive world. The next academic staff member gave a description of an immersive experience created for students in the subject she teaches:

Because they need to be conscious of the fact that I'm not just a Graphic Designer in my little world and somebody is going to pay me, and I'm just going to draw pictures for the rest of my life. They have to understand this is how the world works.

And so ... towards the end of the first year I have a special project where they get four of them together in a group and they all have to come from different parts of town. They can have two from the suburbs and two from townships, that's okay and then they have to go into what they consider the most needy area and find some or other project to help with. It can be either a budding entrepreneur or it can be some sort of social programme, an NGO [non-government organisation] of some kind that needs help.

So they first identify and that's part of the problem. They go in and they come back and they display this and do a Powerpoint or whatever they like, to tell us where they've been and this is what the place looked like. And the next exercise they get, now go out and help those people and come back and tell us about it. I tell you, it was unbelievable what they did for those people. I had people helping all kinds of charities. I had people helping budding little businesses. I remember a couple of black ladies who were selling muffins on a station, somewhere and they had nowhere to stand. They [the students]—you know they built them things for — it was amazing — it was absolutely amazing and what they got out of this, you know. They said: Do you know how good it felt to help somebody else? So they got that sense of self-worth, that community spiritedness, okay and what was — for me very rewarding — was that they didn't stop that relationship. They were still helping those people months afterwards. [Graphic Design participant].

In the context of this category of description, HE teachers encourage students to make personal choices (e.g. specialisation within the design curriculum), to engage in learning activities that would significantly change their perspective of a situation (e.g. doing a design project to improve the living conditions of a poor community) and to transform their identity from being a student to becoming a designer (e.g. workplace learning where students are required to function as designers in commercial design studio).

Table 4.6 indicates the outcome space of academics' orientation towards the development of graduate attributes in Applied Design programmes. The outcome space shows the relationship between structural and referential aspects, including the hierarchical order of structural aspects, namely: enabled, enhanced and embodied, and the referential aspects of the teaching approach defined as either a predetermined, task-oriented and competency-based approach, or a responsive, flexible, holistic and shared approach to teaching.

Table 4.6: Outcome space of academics' orientations towards the development of graduate attributes in Applied Design programmes

		Referential aspects (what is meant)	
		Predetermined, task-oriented and competency-based approach to teaching	Responsive, flexible, holistic and shared approach to teaching
Structural aspects (internal and external horizon)	Enabled ¹⁵ Teaching is aimed at developing technically competent students who are “tailor-made” for a specific workplace context to “hit the road running” i.e. to be employable	Category A HE teacher-controlled approach to teaching and learning with students in their individual capacity focusing on the development of high levels of technical ability	
	Enhanced ¹⁶ Teaching is aimed at accommodating students' learning needs by re-contextualising disciplinary or theoretical knowledge to enhance learning and application of knowledge and skills		Category B HE teacher is accommodating the collective needs of students in the teaching-learning process
	Embodied ¹⁷ Teaching is aimed at higher levels of engagement to develop change agents who can make a meaningful contribution to society in general		Category C Mutual understanding and shared responsibility between HE teacher and students to deepen the learning experience

¹⁵ To enable something to happen means to make it possible for it to happen (Collins Cobuild English Dictionary, 2001:503)

¹⁶ To enhance something means to improve its value, quality or attractiveness (Collins Cobuild English Dictionary, 2001:510)

¹⁷ To embody an idea or quality means to be a symbol or expression of that idea or quality (Collins Cobuild English Dictionary, 2001:500)

4.8. Conclusion

The findings reported in this chapter clearly indicate that academic staff members hold qualitatively different conceptions of graduate attributes in Applied Design programmes, and also that they differ in their orientations towards the development of graduate attributes in these particular programmes. For some academics, graduate attributes are technical abilities developed within a given situation (e.g. classroom or design studio at the institution). For others, graduate attributes are the creative and dynamic exploration of design ideas to achieve design solutions that would contribute to society in general. Likewise, their orientations towards the development of graduate attributes range from a narrow competency-based focus to the creation of immersive experiences that will bring about personal change.

In the next chapter the conclusions, implications and limitations of this study will be described in more detail.

Chapter 5

Interpretations, implications, limitations and conclusions

To apprehend their dynamic roles as curriculum workers, educators must abandon the conviction that curriculum is an object – explicit, proscribed and given. Regrettably, this way of characterizing curriculum can lead teachers to think of themselves as technicians whose realm only includes lesson plans, curriculum guides, outcomes, and tests but excludes their own artistry and their students' curiosity from curriculum development and enactment.

Joseph (2011:3)

5.1. Introduction

In the introductory chapter of this dissertation, the researcher argued that according to several prominent international studies a focus on mere academic disciplinary knowledge is not sufficient to meet employers' and students' expectations about higher education studies. Moreover, the literature suggests that the so-called discrepancy between the needs of the world of work and those of higher education could possibly be addressed by placing a more pertinent focus on the development of graduate attributes. In Chapter Two the researcher explored the conceptual and contextual aspects associated with the notion of graduate attributes from an international and national perspective. To further her understanding of the meaning of graduate attributes, the researcher undertook a phenomenographic study, exploring academics' conceptions of graduate attributes in the context of their own understanding of undergraduate curricula of five Applied Design programmes at the Cape Peninsula University of Technology. In support of this aim, four research objectives were posed:

- To explore the current conceptions of academic staff members of undergraduate Applied Design programmes at the Cape Peninsula University of Technology.
- To investigate the current orientations of these academic staff members in terms of the development of graduate attributes in the respective undergraduate programmes.
- To determine the interaction between the conceptions (i.e. the “what”) and the orientations (i.e. the “how”).
- To recommend a framework for the development of graduate attributes at the Cape Peninsula University of Technology, based on the findings of this study.

In the previous chapter the researcher reported on the findings of the empirical part of the study which focused on the conceptions (i.e. the “what”) of graduate attributes as

experienced by academic staff members in Applied Design undergraduate programmes at the Cape Peninsula University of Technology. The findings also included the academics' orientations (i.e. the "how") towards the development of graduate attributes in the subjects they were teaching during 2012. In Chapter Four the researcher distinguished between "curriculum-as-designed" and "curriculum-in-action" with regard to these Applied Design programmes based on the work of Barnett and Coate (2005) and presented the outcome spaces including the categories of description of both the conceptions ("what") and the orientations ("how") of embedding graduate attributes in the curriculum (see **Table 4.4** and **Table 4.6** respectively).

In this final chapter the many strands related to the notion of graduate attributes as a complex, multi-dimensional and inter-related concept are drawn together to construct a synthesis of the study, thereby presenting an integrated graduate capabilities framework. This chapter focuses therefore on highlighting the relationships between the findings of the empirical study (see **Chapter 4**) and the three educational spaces of an engaged curriculum as defined by Barnett and Coate (2005). The four principal, yet inter-related arguments or meta-concepts associated with a more pertinent focus on developing graduate attributes (see **Chapter 2**) relate to both the findings of the empirical study and the curriculum theory. This chapter commences with a discussion and interpretation of the outcome spaces that emerged from the phenomenographic data analysis process, emphasising the relationship between these findings (see **Chapter 4**) and the literature perspectives on graduate attributes (see **Chapter 2**). This is followed by the conclusions and implications of the study and a description of the researcher's proposed graduate capabilities framework. Finally, the limitations to the study, opportunities for future research and the researcher's concluding remarks on this phenomenographic study and are given.

5.2. Interpretation of outcome spaces

In the previous chapter, the empirical study revealed that the group of Applied Design academics who participated in this study has quite distinct and different understandings of what is meant by graduate attributes (see **Table 4.4**) as well as of how graduate attributes are developed in these programmes (see **Table 4.6**). **Figure 5.1** shows these two sets of data described as categories of description in the previous chapter, indicating the relationship between these two sets of outcome spaces. Such a relationship is to be expected given the fact that these two outcome spaces relate to two key aspects (i.e. the "what" and the "how") of the phenomenon being investigated. The four categories of description that emerged from the data as the conceptions of academics in terms of the

notion of graduate attributes (see **Table 4.2**) appear on the horizontal axis, while the three categories of description that emerged from the data as the orientation of academics in terms of how graduate attributes are developed through their teaching practice (see **Table 4.5**) appear on the vertical axis of **Figure 5.1**. By viewing the findings in its totality, the researcher was able to identify three broad clusters depicting the collective pool of meaning based on the utterances of the participants in this phenomenographic study (these are represented in **Figure 5.1** as three circles, labelled as numbers: 1, 2 and 3). When considering the entire pool of meaning based on the responses of academics' in terms of their conceptions of graduate attributes in their curricula, and also how these are developed with regard to each broad cluster (see circles 1, 2 and 3 in **Figure 5.1**), the researcher noticed a relationship between these broad clusters and the three categories of conceptions of graduate attributes that emerged from the literature perspectives described in **Chapter Two** of this dissertation. In **Table 2.11** of this dissertation these are listed as:

Category 1: A technician and transmission approach.

Category 2: An adaptation and student-focused approach.

Category 3: A dynamic, interactive and learning-focused approach.

The experiences of academic staff members in the Applied Design programmes at the Cape Peninsula University of Technology in the **first broad cluster** relate well to the first category of conceptions that emerged from the literature perspectives, namely that of a simplistic, technician approach to curriculum and a transmission mode of teaching (see **Table 2.11** and **Figure 5.1**). The **second broad cluster** clearly showed a resemblance with the adaptation and student-focused approach to curriculum described in **Table 2.11**, whereby curriculum is viewed as a process that enables student learning and the HE teacher's role is to facilitate the learning process by means of enhanced teaching strategies aimed at helping students to construct knowledge and develop skills. The three circles depicting these broad clusters of curriculum conceptions and orientations towards graduate attributes in Applied Design programmes at the Cape Peninsula University of Technology are slightly different in size to indicate the approximate number of academic staff members whose experiences related to each cluster. The size of the second circle in **Figure 5.1** shows that a larger number of participants in this phenomenographic study related experiences of graduate attributes that could be contributed to a student-centred approach to the curriculum and to students' learning. The broken line of each circle shows that the clusters are not definitive, but that the grouping is open for interpretation. The responses of academics' linked to the third broad cluster (see **Figure 5.1**) bring to mind a dynamic, interactive and learning-focused conception of curriculum supported by teaching strategies that enhance conceptual understanding in a dialogic relationship between the HE teacher and students, as described

in the third category of **Table 2.11**. The three broad clusters depicted in **Figure 5.1** below and the variations in structural and referential aspects associated with each category of description as presented in the two outcome spaces (see **Table 4.4** and **Table 4.6**) indicate that the notion of graduate attributes is experienced by academics as contextually oriented, multi-layered and complex. These outcomes spaces show that academics' conceptions and orientations of graduate attributes range from being simplistic, technician and disaggregated to being synergistic, interwoven and transformative in nature.

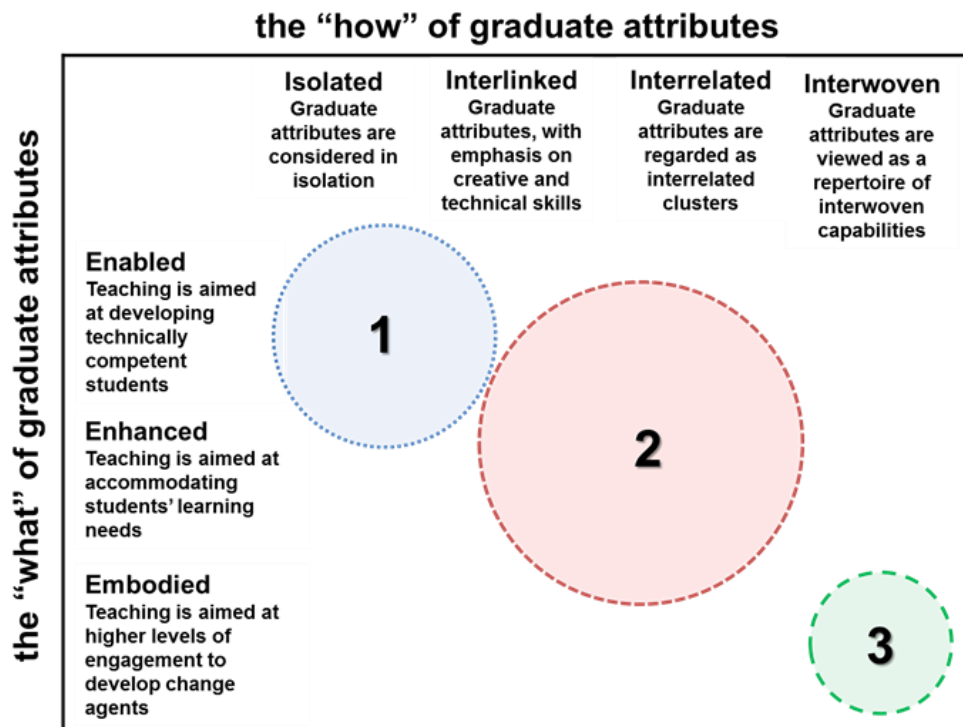


Figure 5.1: Interactions between outcome spaces of graduate attributes in Applied Design programmes

5.3. Conclusions

Based on the findings from the literature perspectives presented in Chapter Two and the empirical findings of the phenomenographic study presented in Chapter Four of this dissertation, at least four conclusions can be drawn:

Firstly, the array of terms associated with the notion of graduate attributes (see **Table 2.8**) exacerbates academics' misconceptions about what is meant by graduate attributes in higher education curricula. Academics at the Cape Peninsula University of Technology often associate critical cross-field outcomes, introduced by SAQA in the late 1990s as part of outcomes-based education, with what is described in international literature as "generic graduate attributes" or "employability skills". This is understandable given the similarities as stated in **Table 2.4**. By adopting a contemporary view, the Council on Higher Education in

its report on the 2nd draft *Framework for Qualification Standards in Higher Education* published in January 2013 is attempting to demystify some of these misperceptions. However, it is still too early to predict if the notion of graduate attributes regarded as outcomes such as knowledge, skills and competences including values, attitudes, critical thinking, ethical and professional behaviour and the capacity to take what has been learnt beyond the site of learning, as defined by the Council on Higher Education in this framework (2013:19) will be adopted widely by academic staff.

Secondly, it is evident from the literature perspectives described in Chapter Two and from academics' qualitatively different conceptions described in Chapter Four, that the "what" and the "how" associated with graduate attributes vary significantly. The phenomenographic analysis indicates that if academics view graduate attributes as discrete, isolated units of learning with a generic purpose and nature that can be attached to an existing curriculum as a "quick-fix" to address concerns expressed by employers about the quality of graduates, they are likely to have a simplistic, technicist conception of curriculum as a construct and are likely to adopt a transmission approach in their teaching. The negative implications of this approach to teaching on students' learning are described in literature.

Thirdly, there are academic staff members (although only a minority group at this stage) who view curriculum as a dynamic interaction between the HE teacher, students and the key elements of "knowing", "doing" and "being" (Barnett & Coate, 2005). These academics have progressed beyond a simplistic, technicist conception of graduate attributes and have adopted a dynamic, integrated and holistic view of developing graduate attributes through their teaching practice. These academics view graduate attributes as enabling and transformative aspects of learning at a higher education level and their accomplishments should be encouraged and supported within the institutional framework. By highlighting the positive impact of this conception of curriculum on students' learning, more academics might be encouraged to adopt such an approach to develop graduate attributes.

Fourthly, students are mostly not consulted when curriculum decisions are made, and instruments to evaluate the effectiveness of curricula are presently lacking or are inadequate. These shortcomings perpetuate a simplistic and technicist approach to curriculum design and renewal which often result in a separation of teaching from learning.

Finally, the researcher wishes to echo the sentiments expressed by Jackson (2011b:1) who suggests that "as we develop deeper understandings about the sorts of learning and development that are required for living a successful and fulfilled life in a complex modern world, it becomes more and more apparent that higher education institutions need to pay

more attention to developing students as whole people". Presently, an ontological perspective of curriculum appears to be lacking.

5.4. Implications

At this point, it is important to reflect on the primary research question, the literature perspectives and the findings of the phenomenographic study. While not seeking to put forward an argument based on causation and prediction, the researcher wishes to emphasise some key principles of understanding graduate attributes and curriculum design based on the work of Hager (2006:18-31) and Joseph (2011) applicable to this context. Hager (2006:32-43) recommends the following five principles:

- By viewing **learning as a process and not as a product**, the shortcomings of equipping students for a changing world cannot be addressed by filling the so-called "gap" or "knowledge deficit" (Hinchliffe, 2006:95), and by simply adding more subject content as discrete, self-contained items to an existing programme.
- By paying attention to the **holistic nature of graduate attributes** academics can avoid the danger of treating such attributes as "a simple mechanistic list of separate traits" (Hager, 2006:35). Instead, these attributes should be treated as blend of knowledge, skills and dispositions that overlap and interweave "like the threads in a carpet" (Hager, 2006:35).
- By taking account of the **social nature of learning**, higher education teachers will be able to avoid an over-emphasis on technical competencies and acknowledge that the diverse nature of graduate attributes requires an appropriate blend of both individual and social or communal learning aspects which form part of the way professionals operate in modern-day workplaces.
- By acknowledging the **contextual nature of graduate attributes**, graduates are introduced to complex issues related to political, economic, social and technological changes influencing the workplace.
- By recognising the relevance of graduate attributes for **lifelong learning and professional development** graduates are encouraged to foster generic capabilities and to adapt to the demands of a changing world.

In addition, Joseph (2011:3) recommends the following in terms of curriculum inquiry:

For curriculum to be understood as process for transforming educational aims and practices, it must be conceptualized as an undertaking that encompasses inquiry and introspection. Therefore, the concept of curriculum should include in-depth examination of practices, interactions, values and visions as well as an "inward journey" (Slattery, 1995:56) of personal reflection.

Joseph (2011:1) encourages higher educationists to engage in scholarly activities of curriculum inquiry and argues that “this rich and deep field of scholarship and inquiry offers language and patterns of thought which allow for the naming, questioning, and critique of dominant perspectives and the imaging of alternatives to conventional curriculum” (Joseph, 2011:3). Turning to conflicting conceptions of curriculum, Joseph (2011:20) suggests that in order to understand academics’ different conceptions and orientations it is necessary to acknowledge the “construct of cultures of curriculum” which she explains as follows:

We named these orientations “cultures” because of our understanding of how they are revealed in belief systems, everyday behaviors and interactions, the artifacts that participants create, the use that people make of time and space, and the allocation of decision-making power. These curriculum orientations comprise visions and practice – including assumptions about the needs and nature of learners, the role of [higher education] teachers and instruction, norms about subject matter, learning environments, curriculum planning, and evaluation; in addition, we consider dilemmas of practice and critique of the inherent visions within these curricula.

Joseph (2011:19-20) describes eight different curricular cultures in her book *Cultures of curriculum*, by means of a systematic framework for understanding each culture. Although it is not the intention of the researcher to describe these different cultures of curriculum at this point, it is important to state the significance of their existence and to recognise that every one of these cultures of curriculum relate to different research paradigms, educational philosophies, norms, beliefs, values and practices. By acknowledging the manifestation of these different curricular cultures in the minds and actions of academics, it is possible to “understand why an individual’s view of curriculum may be so fundamentally different from someone else’s, why it may be so difficult to understand another’s perspective, and why serious conversations about curriculum among people whose worldviews are strongly embedded within particular paradigms can be frustrating” (Joseph, 2011:11).

To some extent, this insight explains why academics’ conceptions and orientations of the notion of graduate attributes are so dissimilar in this phenomenographic study. It also suggests that curriculum inquiry and change in higher education will be influenced, often negatively, by the impact of these different curriculum cultures. One possible way of addressing this concern would be to adopt an integrated graduate capabilities framework as a way of balancing the diverse understandings related to the notion of graduate attributes. This framework is described in more detail below.

5.5. An integrated graduate capabilities framework

In the first section of **Chapter Two** of this dissertation the researcher described the engaged curriculum model of Barnett and Coate (2005:135) which consists of three educational spaces namely:

- **Epistemological space** in which students can acquire a deep understanding of knowledge and take up informed and critical stances in relation to it (see **Paragraph 2.4.1.**)
- **Practical space** so that students can develop the capacities for purposive but critically judged actions – these may be tied to disciplinary knowledge or related to fields of professional practice (see **Paragraph 2.4.2.**)
- **Ontological space** in which the development of the student’s own being can take central stage, equipping students for a world of incessant change (see **Paragraph 2.4.3.**)

These three inter-related spaces of higher learning in turn relate to a holistic understanding of graduate attributes with an emphasis on developing capabilities. Stephenson and Weil (1992:2) in Yorke (1999: 6) define “capable people” as individuals who have confidence in their ability to take effective and appropriate action, explain what they are seeking to achieve, live and work effectively with others, and continue to learn from their from their experiences, both as individuals and in association with others. These authors indicate that capable people are individuals who “not only know about their specialisms, they also have the confidence to apply their knowledge and skills within varied and changing situations and [who] continue to develop their specialist knowledge and skills” (Yorke, 1999: 16).

In her concluding remarks of Chapter Two (see **Paragraph 2.9**) the researcher argues that the term “graduate capabilities” adequately reflects the complexity associated with different forms of knowledge, skills, attributes and competencies pertaining to a changing world of complex practices. The term also encompasses the ability to perform skilful practices and actions associated with professional expertise and capacity. “Graduate capabilities” also suggest a lifewide and lifelong learning view that allow graduates to embrace their own potential, qualities and abilities as they make their way through their higher education studies, career and life.

Aligned to these three educational spaces are **the four main arguments or meta-concepts** (see **Section 3 of Chapter 2**) associated with graduate attributes in literature, namely:

- Enhancing employability of graduates.
- Preparing students for new super complex world order marked by contestability, changeability and uncertainty (Barnett, 2006:50).
- Preparing students for global and social citizenship with the purpose of becoming transformative agents in society.

- Strengthening the propensity for lifelong learning and lifewide learning that open up opportunities for educating students holistically.

The integrated framework illustrated in **Figure 5.2** incorporates the three domains of higher learning (numbers 1, 2 and 3) of “knowing”, “doing” and “being” that constitute the educational spaces of the engaged curriculum model of Barnett and Coate (2005) which was used as the conceptual framework for this study. It also makes provision for the four meta-concepts (numbers 5, 6, 7 and 8) explored in section 3 of the literature perspectives (see **Chapter 2**) as these are key aspects influencing the educational spaces of knowing, doing and being. Capabilities are described by Stephenson and Weil (1992:2) in Yorke (1999:16) as people who have confidence in their ability to take effective and appropriate action, explain what they are seeking to achieve, live and work effectively with others, and continue to learn from their experiences, both as individuals and in association with others, in a diverse and changing society. Central to the framework is the conceptions of graduate capabilities (number 1) as defined by Stephenson and Weil (1992) that encompasses the complex, inter-related and often tacit nature of a blend of disciplinary knowledge, practical and conceptual skills, an ethical disposition and value orientation, as well as enduring qualities and attributes that should be associated with a holistic approach to developing graduate capabilities in higher education curricula. With reference to the four framing categories of graduate attributes defined by Griesel and Parker (2009) and commissioned by Higher Education South Africa and the South African Qualifications Authority (see **Paragraph 2.5.4.1.**), consisting of basic skills and understanding (number 12); knowledge and intellectual ability (number 9); workplace skills and applied knowledge (number 10) and interactive and personal skills (number 11), these are the enabling and transformative elements of this integrated framework. Basic skills and understandings (number 12) form an integral part of graduate capabilities (number 4 in **Figure 5.2**). The contextual influences associated with the dynamic and changing external environment (see section two of **Chapter 2**) that impact on higher education curricula form part of the outer circle of this framework (number 8) and the dynamic nature of this environment is indicated by the use of arrows.

In summary, this integrated capabilities framework brings together the many different strands related to the notion of graduate capabilities as a complex, multi-dimensional and inter-related concept. By adopting a critical disposition and reflective practice towards the process of curriculum renewal and design and by acknowledging the manifestations of different curricular cultures in the minds and actions of academics in the process of curriculum transformation, this integrated capabilities framework could make a meaningful contribution.

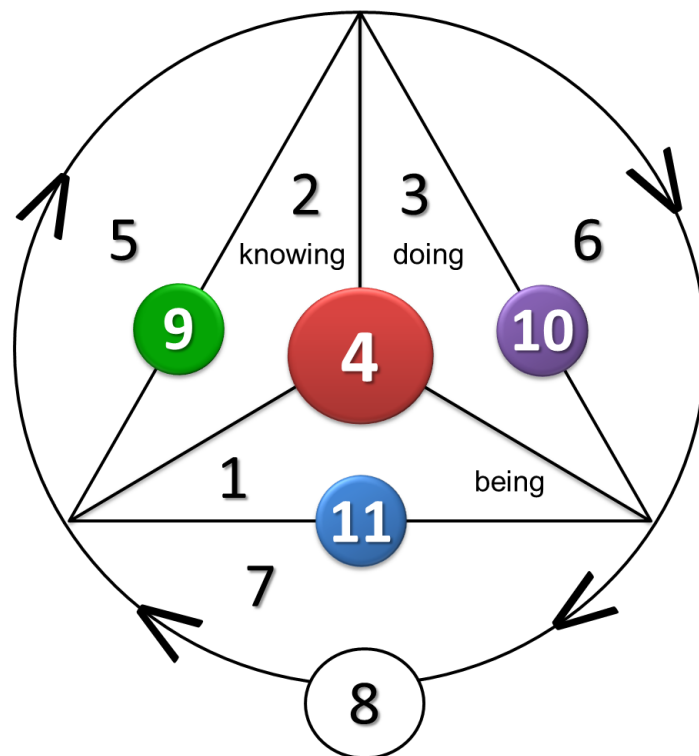


Figure 5.2: Integrated graduate capabilities framework for higher education curriculum development

Legend to Figure 5.2			
1	Ontological space	7	Meta-concept related to social responsibility and good citizenship
2	Epistemological space	8	Meta-concept related to responding to the needs of a dynamic, changing world
3	Practical space	9	Knowledge and intellectual ability
4	Capabilities including basic skills and understandings of a graduate	10	Workplace skills and applied knowledge
5	Meta-concept of lifelong and lifewide learning	11	Interactive and personal skills
6	Meta-concept of employability	4	Basic skills and understandings (which form an integral part of capabilities)

5.6. Limitations of the study

The following aspects constitute the limitations to this study:

- The phenomenographic study was limited to a group of academic staff members teaching subjects of Applied Design programmes at the Cape Peninsula University of Technology in one of the faculties of this institution only. Academic staff members from other programmes in the Faculty of Informatics and Design at this institution and other programmes in other faculties of the institutions were excluded. This was done to contain the amount of data generated as a result of the analysis of curriculum

documentation, focus group sessions and personal semi-structured interviews to a manageable size and by taking the methodological issues associated with phenomenographic studies (see **Paragraph 3.8.3.**) into account.

- In Chapter Three of this dissertation the limitations of using a phenomenographic approach to qualitative data collection and analysis were discussed (see **Paragraph 3.8.3.**) and the researcher also familiarised herself with the criticism available in literature on phenomenography in terms of its use as a research approach.
- A potential limitation to this study could be that the focus group sessions and personal semi-structured interviews were principally driven by the researcher's understanding of how a phenomenographic approach to qualitative research should be executed, which could be regarded as a source of weakness. The following steps were however followed in order to prevent subjective interpretations:
 - A detailed analysis of literature on phenomenography as a qualitative research approach was done before the researcher embarked on the data collection and analysis process.
 - The researcher verified the appropriateness of the reflective exercise and questions used in both the focus group sessions and the semi-structured interviews with a number of HE teaching and learning practitioners and academic development experts before applying them.
 - Subsequent to the analysis, the researcher submitted the findings to the Faculty Teaching and Learning coordinator of the Faculty of Informatics and Design to be tested for accuracy of interpretation.
- The researcher attempted to deal with the process of data collection and analysis as objectively and conscientiously as possible by adhering to appropriate research conventions and by taking great care in recording information, compiling notes from transcriptions and by interpreting the data. Although the researcher agrees that qualitative researchers have a moral and ethical responsibility to produce good quality research, it is however important to acknowledge that the qualitative researcher's inclination to intervene in his/her study remains problematic.

5.7. Opportunities for future research

The need for on-going research into curriculum, graduate attributes and the relationship between higher education and the world of work remains critical if the universities are to remain relevant in a changing world. Although many opportunities for future research exist in these rich fields of study in higher education, the researcher proposes that the focus should be on exploring the influence of different cultures of curriculum, mentioned earlier in this

chapter, on curriculum change and transformation. It will also be helpful to focus on issues related to the dynamic interaction between the conceptions of students, employers and academics in terms of graduate attributes and to explore impact of teaching strategies such as capstone projects that could enhance graduate capabilities. The outcomes of this qualitative research should be seen as the first step in the exploration of academics' conceptions and orientations of graduate attributes at the Cape Peninsula University of Technology. By exploring academics' conceptions and orientations of graduate attributes across a wider range of disciplines using the categories of description from this study and others in literature (e.g. Barrie, 2007) and by using quantitative research methods it will be possible to gain an even deeper understanding of this phenomenon.

5.8. Concluding remarks

The researcher embarked on a journey to explore the conceptual and contextual aspects associated with the notion of graduate attributes from an international and national perspective and to gain deeper understanding of academics' conceptions of graduate attributes in the context of their own teaching practice at a University of Technology. This study has shown that by gaining insight into academics' conceptions of, and their orientations towards graduate attributes through their teaching practices, insights are also gained on students' learning experiences. These insights relate to findings of other studies on curriculum conceptions, students' conceptions of learning and teachers' conceptions of teaching as described in Chapter 2.

Finally, it is evident that if curriculum is regarded not as product but as an evolving process, based on a dynamic interaction between academic staff members, students and external influences to form a coherent, yet flexible structure; students are more likely to engage with the professional identity associated with their field of study and will also show a deeper understanding of the complexities of the changing world of work. Through this dynamic and collaborative process, students are more likely to enter the world of work as "capable people", or in the context of this study, capable design professionals, who can make a meaningful contribution to their profession and to society in general.

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List of Appendices

- A Letter of permission from Dean of Faculty of Informatics & Design
- B Matrix of curriculum data analysis of five Applied Design programmes
- C Interview schedule of personal semi-structured interviews
- D Consent form for interviewees
- E List of focus group sessions of Applied Design programmes
- F Template of reflective exercise provided to focus group participants prior to the first groups session of each programme
- G Handout provided to focus group participants prior to the first group session of each programme
- H Example of data analysis to define categories of description



Appendix A

Mrs. Marianne Bester

Fundani Centre for Higher Education Development
Curriculum Development Unit
Tel. (021) 959-6466/6214
E-mail: BesterMa@cput.ac.za

25 April 2012

Prof J. Cronje
Dean: Faculty of Informatics & Design

Dear Prof Cronje

RESEARCH PROJECT: EMBEDDING GRADUATE ATTRIBUTES IN THE CURRICULUM

Earlier this year CPUT adopted a *Vision 2020 strategic plan* to drive institutional actions over the next decade in our quest to be at the heart of technology education and innovation in Africa. The Vision 2020 strategic plan aims to:

- To build an institution that is highly efficient, sustainable and environmentally conscious.
- To build an institution that will be known for the high quality of its teaching and learning as well as the relevance and responsiveness of its curricula.
- To create a vibrant and well-resourced livening and learning environment for its students.
- To enhance and develop the quality and effectiveness of its research and knowledge production.

The Vision 2020 strategic plan refers to a number of competencies and capabilities which our graduate should possess. These are broad ranging attributes that provide a set of high level indicators of what we should strive for in developing HEQF aligned curricula at CPUT. At the heart of the many challenges of embedding graduate attributes as learning outcomes in our curricula are the different conceptions, orientations and practices of academic staff members at CPUT.

I have embarked on a small-scale qualitative analysis to explore the current conceptions and orientations of academic staff members in terms of the development of graduate attribute outcomes in undergraduate occupational and professional curricula at the Cape Peninsula University of Technology.

The purpose of this letter is to request your permission to conduct in-depth semi-structured personal interviews with academic staff members (including Curriculum Officers) in your faculty. Academic staff members recruited for this purpose will be required to provide their consent to participate in this research project. Kindly find attached a copy of the consent form.

If this request meets with your approval, kindly complete the attached form.

Yours sincerely

A handwritten signature in blue ink that reads "M Bester".

Mrs Marianne Bester
Head: Curriculum Development

To: Chairperson
Institutional Ethics Committee
Cape Peninsula University of Technology

Date 25 April 2012

**RESEARCH PROJECT
EMBEDDING GRADUATE ATTRIBUTES IN THE CURRICULUM**

I, Johannes Cronje
hereby grant permission that Mrs Marianne Bester, Head of the Curriculum Development Unit of the Fundani Centre for Higher Education Development may approach academic staff members of the **Faculty of Informatics & Design** to participate in a research project to explore two main questions related to the conceptions and orientations of academic staff members at the Cape Peninsula University of Technology, namely: 'what' are graduate attributes in the minds of academic staff members and 'how' are graduate attributes currently embedded in occupational and professional curricula at this institution through teaching and assessment practices.

Signed J Cronje *Johannes Cronje* Date 2012-05-03

Comparison of the specified outcomes (subject-specific knowledge and skills) and critical cross field outcomes (generic graduate attributes) from the SAQA registered qualifications of the five Applied Design programmes offered at the Cape Peninsula University of Technology with the four framing categories of graduate attributes defined in the SAQA-HESA baseline study.

Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
1. Identify and solve problems in which responses demonstrate that responsible decisions using critical and creative thinking have been made	<p>Fashion: 1) Identifying and solving problems in which responses display that responsible decisions using critical and creative thinking have been made.</p> <p>Graphic Design: 1) Identifying and solving problems in which responses display that responsible decisions using critical and creative thinking have been made is addressed throughout the course.</p> <p>Surface Design: 1) Demonstrate multi-skilled ability in two- and three-dimensional design in order to resolve both concrete and abstract design challenges.</p>	<p>Graphic Design: 1) Identify key subject, problems, targets and objectives in keeping with workable marketing and advertising models. 2) Examine, assess and contextualise relevant historical and theoretical visual models.</p> <p>Jewellery Design: 1) Apply the theoretical aspects of the appropriate technology in the production of jewellery.</p>	<p>Fashion: 1) Manipulate and adapt block patterns for advanced styling and fit including tailoring. 2) Produce patterns and garments in line with client specifications. 3) Integrate the design process with merchandising and marketing. 4) Produce fashion presentation boards to the specific requirements of a client.</p> <p>Graphic Design: 1) Prepare and oversee the final design for production in accordance with the technical requirements of the media.</p> <p>Jewellery Design: 1) Create unique solutions to problems encountered in the design process. 2) Implement design solutions utilising the technology available. 3) Drawing is used as a creative tool in the process of visualising jewellery to be made. 4) Produce working drawings to facilitate the production of jewellery. 5) Communicate design concepts to convey solution of design</p>	

Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
			problems. Industrial Design: 1) Execute drawings of design solutions for boardroom discussion. 2) Provide advanced model making and prototyping skills	

Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
2. Work effectively with others as a member of a team, group, organisation, community		Fashion: 1) Identify the principles and concepts of human resources and their function in the clothing industry	Graphic Design: 1) Working effectively with others as a member of a team is addressed in terms of presenting the final design to the target group. Jewellery Design: 1) Working effectively with other learners in the workshop and studio	Fashion: 1) Working effectively with others as a member of a team, group, organisation, community - this is addressed throughout the course.

Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
3. Organise and manage oneself and one's activities responsibly and effectively				<p>Fashion: 1) Integrate fashion concepts and influences to produce a design portfolio showing strong personal direction. 2) Organising and managing oneself and one's activities responsibly and effectively. This is addressed throughout the course.</p> <p>Graphic Design: 1) Organising and managing oneself and one's activities responsibly and effectively is addressed throughout the course</p>

Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
4. Collect, analyse, organise and critically evaluate information	<p>Fashion: 1) Collecting analysing organising and critically evaluating information.</p> <p>Graphic Design: 1) Collecting, analysing, organising and critically evaluating information is done in relation to the needs of the target market and product</p>	<p>Fashion: 1) Apply data gathering skills with analytical and summative research projects.</p> <p>Graphic Design: 1) Conduct research and analyse findings using appropriate research methodology. 2) Group,</p>	<p>Graphic Design: 1) Source and direct specialist suppliers required in the production of the design</p>	<p>Fashion: 1) Develop an investigative proposal on an area of personal choice.</p> <p>Graphic Design: 1) Synthesise data and draw up a creative brief, work plan and strategy.</p>

	<p>requirements. Jewellery Design: Collecting, organising, analysing and critically evaluating information. In the first year the emphasis is on collecting and organising, in second year the emphasis moves towards analysing and in third and fourth year the emphasis shifts to critical evaluation.</p>	<p>evaluate and select the most effective visual concept according to the principles of advertising and marketing.</p>		
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Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings	Knowledge and intellectual ability	Workplace skills and applied knowledge	Interactive and personal skills
	Do graduates display the necessary know-how to meet workplace expectations?	Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
<p>5. Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation</p>	<p>Fashion: 1) Communicating effectively using visual, mathematical and/or written persuasion. Graphic Design: 1) Maintain accurate records.</p>	<p>Graphic Design: 1) Select and arrange the forms of words in accordance with typographic principles to give optimal expression and clarity to the content. 2) Draw or otherwise indicate the original pictorial and/or symbolic images required by the concept which will elicit the desired response. 3) Combine word and image into an accurate presentation of the final visual communication. 4) Test the effectiveness of the presentation to the target group. 5) Refine the design according to the feedback received. 6) Specify production components of the visual communication in accordance with the design requirements and media</p>	<p>Graphic Design: 1) Make presentations to clients clearly and confidently. 2) Communicating effectively using visual, mathematical and/or language skills in the modes of oral and/or written persuasion is addressed throughout the course, however the primary focus of the course is on visual communication (as stated under knowledge and intellectual ability).</p>	<p>Graphic Design: 1) Research and develop a creative brief, which meets a client's visual communication needs in the marketing of a formal business by setting up appointments and conduct interviews and record data.</p>

		<p>specifications.</p> <p>Jewellery Design: 1) Communicating effectively using visual and/or language skills in the modes of oral and/or written persuasion. It is essential that various discourses regarding the jewellery field is engaged in for the conceptual development designers.</p>		
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Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
6. Use science and technology effectively and critically, showing responsibility towards the environment and health of others	<p>Fashion: 1) Using science and technology effectively and critically.</p> <p>Jewellery Design: 1) Using science and technology effectively and critically, showing responsibility towards the environment and health of others. The technology used is potentially harmful and needs to be harnessed responsibly.</p> <p>Industrial Design: 1) Demonstrate a high level of awareness of technology in general (especially. materials and process technology)</p>	<p>Jewellery Design: 1) Use gem identification equipment to identify gemstones.</p>	<p>Fashion: 1) Adopt advanced production technology methods to specific styles and fabrication in order to achieve required quality standards of the garment. 2) Apply technology (eg CAD) to pattern making and grading. 3) Apply computer technology to technical drawing, illustration and fashion designs.</p> <p>Surface Design: Employ the correct procedures and technologies appropriate in creating produce</p> <p>Graphic Design: 1) Using science and technology effectively and critically, showing responsibility towards the environment and health of others with specific reference to preparing and presenting the final design for production.</p>	

			<p>Jewellery Design: 1) Employ and develop the available technology to produce designed jewellery. 2) Use various materials, metals and their alloys to produce creative jewellery. 3) Adhere to the relevant Health and Safety regulations.</p> <p>Industrial Design: Use 2D and 3D CAD software for engineering and graphic presentation.</p>	
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Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
7. Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation		<p>Fashion: 1) See fashion as an interrelated concept which draws on a multi-disciplinary basis for its theory and function.</p> <p>Surface Design: 1) Demonstrate an understanding of the relationship between research, theory, history and contemporary issues in relation to selected themes and topics within the design discipline.</p>	<p>Graphic Design: 1) Draw a range of suitable visual ideas, which answer the brief using, appropriate historical contexts and theoretical creative models as a basis. 2) Demonstrating an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation with specific reference to historical and theoretical visual models.</p> <p>Industrial Design: 1) Execute competent design work appropriate to a broad variety of specified markets and social contexts. 2) Demonstrate</p>	<p>Graphic Design: 1) Manage studio space, equipment and materials effectively.</p>

			ability to draw relevant language, reference and thought from historical and current movements in Industrial Design.	
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Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings	Knowledge and intellectual ability	Workplace skills and applied knowledge	Interactive and personal skills
	Do graduates display the necessary know-how to meet workplace expectations?	Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
8. Reflecting on and exploring a variety of strategies to learn more effectively		Graphic Design: 1) Reflecting on and exploring a variety of strategies to learn more effectively with specific reference to conducting research (including within a historical context) and analyse findings using appropriate research methodology and synthesising data and draw up a creative brief, work plan and strategy.		

Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
9. Participating as responsible citizens in the life of local, national and global communities				Graphic Design: 1) Participating as responsible citizens in the life of local, national and global communities with specific reference to the historical context and development of research skills.

Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
10. Being culturally and aesthetically sensitive across a range of social contexts	Jewellery Design: Being culturally and aesthetically sensitive across a range of social contexts. It is necessary to establish indigenous jewellery and this sensitivity is a prerequisite.		Graphic Design: Being culturally and aesthetically sensitive across a range of social contexts is addressed throughout the course, particularly in relation to the preparing and presenting the final design.	Fashion: 1) Developing personal direction while being culturally and aesthetically sensitive in order to interact with people both in the workplace and socially.

Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
11. Exploring education and career opportunities			Graphic Design: 1) Exploring education and career opportunities is addressed throughout the course with particular emphasis on the individual effort with the context of changing workplace environments.	Industrial Design: Create Designer's CV and portfolio.

Four framing categories of SAQA-HESA baseline study on graduate attributes				
SAQA critical cross-field outcomes	Basic skills and understandings Do graduates display the necessary know-how to meet workplace expectations?	Knowledge and intellectual ability Do graduates display intellectual ability and sufficient conceptual depth to perform well?	Workplace skills and applied knowledge Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?	Interactive and personal skills Do graduates have a sense of self in relation to (changing) workplace contexts and practices?
12. Developing entrepreneurial opportunities	Industrial Design: 1) Execute a basic business plan for a product.	Surface Design: Demonstrate an understanding of market trends, merchandising and business skills relevant to self employment or the employment of others within the discipline	Fashion: 1) Assess the economic viability and financial management of a small business. Graphic Design: 1) Prepare an estimate of costs. 2) Control income and expenses in accordance with sound business practice. 3) Developing entrepreneurial opportunities is addressed throughout the course with specific emphasis on the needs of the workplace.	Jewellery Design: Formulate an approach to business aspects regarding own jewellery. Industrial Design: Capability of positioning him/herself in a business context.

Appendix C

Academics' conceptions and orientations of graduate attributes in Applied Design programmes at a University of Technology

Interview schedule

Purposive sampling was used to recruit a small number of academic staff members of Applied Design programmes in the Faculty of Informatics and Design at the Cape Peninsula University of Technology to participate in semi-structured personal interviews.

Introductory questions

1. What is the intent/purpose of a curriculum?
2. What is your role as HE teacher in achieving the stated learning outcomes/objectives of a curriculum?
3. What is the role of students in achieving the learning outcomes/objectives of a curriculum?

Conceptions of graduate attributes

4. Generally speaking, graduate attributes are often defined as the qualities, skills and understandings (knowledge) a university community agrees its students should develop during their time with the institution.

What is your conception or understanding of graduate attributes in Applied Design programmes?

5. Which of graduate attributes are context-dependent and which are 'generic' or context-independent in your opinion?
6. Which are the graduate attributes that students should develop in the subject(s) you teach?
7. Why do you think these graduate attributes are important to development in an Applied Design programme?

Orientations towards the development of graduate attributes

8. How do you personally encourage the development of graduate attributes as a HE teacher?
9. What are the current constraints in terms of teaching graduate attributes in this programme(s) and in the subject(s) you teach?
10. What are the current constraints in terms of assessing graduate attributes in this programme(s) and in the subject(s) you teach?



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1.

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**4. STELLENBOSCH UNIVERSITY
CONSENT TO PARTICIPATE IN RESEARCH**

Academics' conceptions and orientations of graduate attributes in Applied Design programmes at a University of Technology.

You are kindly requested to participate in a research project conducted by Mrs Marianne Bester, Head: Academic Planning & Institutional Research, Cape Peninsula University of Technology (CPUT). The researcher is conducting this investigation to fulfill the requirements of a postgraduate degree at the University of Stellenbosch. As Curriculum Officer, Teaching & Learning facilitator and/or academic staff member participating in curriculum review activities at CPUT you have been selected as a possible participant in this research project.

5. PURPOSE OF THE STUDY

Preparing students for today's rapidly-changing and highly competitive labour market, for periods of unemployment in times of economic downturn and for lifelong learning are among the most important, yet challenging issues facing higher education in South Africa and across the world. These challenges have fuelled the agenda of developing personal, generic and transferable skills to improve the employability of graduates in many countries. There is strong research evidence that employability relates to the development of graduate attributes in the curriculum.

This research project will aim to explore two main questions related to the conceptions and orientations of staff at this institution, namely 'what' are graduate attributes in the minds of academic staff members and 'how' are graduate attributes currently embedded in occupational and professional curricula at this institution through teaching and assessment practices of academic staff members.

6. PROCEDURES

If you volunteer to participate in this study, the researcher, Mrs Marianne Bester will ask you to participate in semi-structured personal interviews conducted in the privacy of your office (or any other venue e.g committee room suitable for this purpose) at CPUT at a time convenient to both parties. The initial interview session will take approximately 60-90 minutes with the option of a shorter follow-up session to clarify any issues that might emerge. These personal interviews will be digitally recorded.

7. POTENTIAL RISKS AND DISCOMFORTS

The interview process and the nature of the questions asked during the interview sessions will not pose any potential risk or discomfort to you.

8. POTENTIAL BENEFITS TO PARTICIPANTS AND INSTITUTION

The results of this investigation will be shared with the broader CPUT community in appropriate institutional forums such as the Curriculum Officers' Forum, Deans' forum and Senate committees to aid the institution with the drafting of an institutional implementation framework and strategy to embed graduate attributes in curricula at CPUT over the next few years as part of the development of HEQF aligned qualifications. The results will also assist the institution to devise staff development opportunities to enhance teaching, learning and assessment practices, specifically aimed at developing graduate attribute outcomes in CPUT curricula.

9. PAYMENT FOR PARTICIPATION

There is no payment involved in participation.

10. CONFIDENTIALITY

No personal information of a sensitive nature about participants will be collected. Any information that is obtained in connection with this study and that could lead to identification will remain confidential and will be disclosed only with your permission. The data obtained from the interviews will be labelled and coded in such a manner that the confidentiality of individuals who have participated in the study is protected. Hard copies of data will be kept in a safe place. Electronic copies of data will be stored on the laptop computer and/or removable hard drive of the researcher and only the researcher and her supervisor(s) will have access to the data for the duration of the research project. You may request permission to listen to digital voice recordings in the presence of the researcher and edit any of your statements. The researcher will keep the digital voice recordings in a safe place for as long as deemed necessary for the completion of the research project or as stipulated by Stellenbosch University for assessment and moderation purposes. If the researcher uses the results for publication in reputable academic journals and/or conference presentations, confidentiality will be maintained through the labeling and coding system used during the research process.

11. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so such as unacceptable behavior during the interview process.

12. IDENTIFICATION OF RESEARCHER

If you have any questions or concerns about the research, please feel free to contact the principal investigator/researcher: Mrs Marianne Bester, Head: Academic Planning & Institutional Research (previously Head of Curriculum Development) at tel. (021) 959 6468 during office hours or e-mail: besterma@cput.ac.za

13. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché at the Division for Research Development at Stellenbosch University at tel. (021) 808 4622 or mfouche@sun.ac.za or the Dean of the Faculty of Informatics & Design, Prof Johannes Cronje at tel. (021) 4691018 or cronje@cput.ac.za

SIGNATURE OF RESEARCH SUBJECT

The information above was described to me [*the participant*] by Mrs Marianne Bester [*the researcher*] in English. I am in command of this language. I [*the participant*] was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

Name of Participant

Signature of Participant

Date

Mrs Marianne Bester
Name of Researcher

Signature of Researcher

Date

Appendix E**Schedule of focus group sessions of
Applied Design programmes 2012**

Applied Design programme	Date of workshop	Number of academic staff members who participated
Fashion Design	2 August 2012	15 participants
	28 August 2012	16 participants
Graphic Design	11 October 2012	24 participants
	4 December 2012	18 participants
Industrial Design	21 August 2012	21 participants
	2 October 2012	11 participants
Jewellery Design	14 August 2012	11 participants
	23 October 2012	11 participants
Surface Design	10 October 2012	15 participants
	22 October 2012	11 participants

Activities during focus group sessions of Applied Design programmes 2012

Part 1

(60 minutes)

SMALL GROUP DISCUSSION

1. What is the main purpose or intent of a HE curriculum in a broader context?
2. What is the role of the HE teacher in relation to a curriculum?
3. What is the role of the student in relation to a curriculum?

Part 2

(60 minutes)

INDIVIDUAL TASK

Use the TEMPLATE (knowing, doing & being) to describe how these relate to the subject(s) you teach. Use the hand-out provided on the domains of higher learning for this purpose.

Part 3

(120 minutes)

SMALL GROUP DISCUSSION

Use your knowing-doing-being TEMPLATES to compile in your groups a concept map or mind map of the knowledge areas of this programme. Use the hand-out provided on concept maps for this purpose.

Part 4

(120 minutes)

LARGE GROUP DISCUSSION

Display your concept maps to the rest of the group and describe your concept map in detail. Clarify issues raised by the rest of the group.

Appendix F

Name of the programme		
Name of subject(s)		
Knowing	Doing	Being
<p>Knowledge is central to the purpose of higher education and a key aspect of a HE curriculum. Yet, knowledge is not fixed or static, but an active, dynamic component – therefore not merely a list of essential bits of things to know or a list of topics. The act of ‘knowing’ calls for engagement (developing a personal relationship with the body of knowledge) which shapes the identity of the person who engages with the body of knowledge relevant to a specific field of study.</p>	<p>Doing relates to action, skill and performance, but in a wider context than merely mechanistic performance of a task/procedure (manually how to do things). It is not limited to the ‘doing’ of a task, as it also has to do with an intellectual or cognitive ‘doing’. This implies that the person doing the task/performing the action has the understanding (know-how and know-why) to make meaning of the ‘doing’ within a specific context.</p>	<p>Students cannot merely be “assemblies of competencies or reservoirs of knowledge” (Barnett & Coate, 2005:109), which implies that although knowledge and skills are important elements of an engaged curriculum, these two domains of learning cannot adequately prepare students for complex practice in a changing world, without acknowledging the importance of ‘being’ or ‘becoming’. It is therefore important to also focus on capabilities, attributes and qualities of individuals in relation to complex practice, since these aspects are enabling mechanisms in a HE curriculum.</p>
<p>List the key aspects/elements/components related to the body of knowledge of the subject(s) you teach. Remember to consider both scope, depth and complexity.</p>	<p>List the actions, skills and/or performance required in the subject(s) you teach. Remember to consider aspects of praxis and context.</p>	<p>What are the graduate capabilities, attributes and/or qualities that you would expect of a graduate who have successfully completed a qualification in your field of study?</p>

Domains of higher learning

Sullivan and Rosin (2008: xv, xxi) in Scott and Fullan (2009:45) indicate that the core purpose of higher education is not only to impart knowledge or to develop students who are critical thinkers, but to “prepare students for lives of significance and responsibility [by developing] a life of the mind *for practice* (italics in original). This life of the mind for practice means developing students’ capacity “to blend knowledge, skills and appropriate attitude in response to unique situations that require expert judgment”.

It is therefore appropriate to ask the following questions related to technologically and professionally higher education curricula offered by a University of Technology:

- What kinds of *knowledge* are required in HE curricula in responding to a changing world?
- What kinds of *action* relevant to complex practice are required on the part of the student?
- What *personal attributes, values and attitudes* should students have to function effectively – in other words the actual *being* or inner self of a student? (Barnett & Coate, 2005:48)

These questions relate to the three key inter-related domains of an engaged curriculum, identified by Barnett and Coate (2005:70) consists of *knowing, doing* and *being* which provides an analytical frame through which to understand curricula in higher education. An engaged curriculum is based on the educational spaces of knowing, doing and being as defined by Barnett and Coate (2005:135):

- *Epistemological space* in which students can acquire a deep understanding of knowledge and take up informed and critical stances in relation to it.
- *Practical space* so that students can develop the capacities for purposive but critically judged actions – these may be tied to disciplinary knowledge or professional fields or may be more life oriented (such as community service).
- *Ontological space* for the development of the student’s own being has to take central stage in the design of a curriculum for higher education.

When you reflect on the existing curriculum of your programme (at a subject level), identify the three key domains of higher learning, using the template provided for this purpose:

- **Knowledge** is central to the purpose of higher education and a key aspect of any curriculum. Technologically and professionally oriented curricula should provide students with access to both theoretical, disciplinary knowledge as well as tacit, context-dependent knowledge of the workplace. Barnett (2006:152) explains that these curricula must **face both ways** to disciplinary knowledge and to the field of practice. The curriculum must prepare learners for meeting the needs of the world of work while also preparing students adequately for further study. This is a complex relationship between theory (disciplinary knowledge) on the one hand and practice (workplace) on the other hand and not easy to achieve in technical and professionally oriented curricula.
- **Skills and practice** relates to the ‘doing’ domain of higher learning. This ‘doing’ should be seen in a wider context than merely a mechanistic and routine performance of tasks, it also includes an intellectual and cognitive ‘doing’. It therefore implies that students should not only be able to perform required workplace related actions or skills, but also

have the ability to make meaning of the 'doing'. This understanding will enable students to operate effectively when the problem or context of the 'doing' changes.

- Students cannot merely be “assemblies of competencies or reservoirs of knowledge” (Barnett & Coate, 2005:109), which implies that although knowledge and skills are important elements of an engaged curriculum, these two domains of learning cannot adequately prepare students for complex practice in a changing world, without acknowledging the importance of 'being' or 'becoming' – a **sense of self and identity**. It is therefore important to also focus on capabilities, attributes and qualities of individuals in relation to complex practice, since these aspects are enabling mechanisms in a HE curriculum.

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
<p>Strong emphasis on coverage of subject content</p> <p>Lack of integration between theory and practice</p> <p>Emphasis is on the end product (completing the curriculum)</p> <p>Very little opportunity for reflection on the learning process</p> <p>Students' expectation is that curriculum must be 'delivered' to them. Limited confidence to explore and broaden their horizons.</p> <p>Time constraints and large student groups hamper integration</p> <p>Theory components about materials are handled separate to the core aspects of the design curriculum</p> <p>Resistance from students on subject-based approach results in surface learning</p>	<p>Fashion workshop participant: "... we had the same kind of feeling about students, their attitudes, the way that they look at life these days. They don't really go out and gather the information. They wait for things to come to them."</p> <p>This Fashion workshop participant indicates that time constraints impact on integration of theory and practice: "Within this specific subject we find timelines is a big issue because we work with great numbers of students your hours become less and less. So the real transfer of knowledge becomes the typical outcomes based. They race towards the end product and not really grasping what you're trying to teach them in between. It makes our life difficult to actually do that reflection on the learning process ..."</p> <p>Fashion workshop participant relates her own learning experience as a student with heavy emphasis on content-based</p>	<p>Fashion workshop participant: "Students are scared to actually take what you've given to them and go and explore different places and because we're pressed for time we don't always get the chance to give students that ability to go and explore and to open up a little bit more."</p> <p>Fashion workshop participant outlines limitation in terms of progression from first year to third year: "We've also mentioned that – seeing that all the subjects are linking with each other, the students especially in first year level, they find it difficult to link all those subjects, taking it from business side down to garment construction. So it's quite difficult for us to actually – we're trying to – but they don't see the linkage between all the subjects."</p>	<p>Fashion workshop participant: "And that's possibly the generic that maybe there's space – especially with what's happening in education for all students to be – to go through a programme where they learn study skills, how to take notes, how to summarize, speed writing, speed reading. They have space with numeracy if there's information that's relevant across the different courses. Though numeracy sometimes it's very specific. Learning skills, how to use the library, schooling just doesn't get people there."</p>

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
<p>Students have difficulty adapting to changing needs of workplace – groomed in constrained and fixed ways of thinking which limits their ability to develop emotional intelligence, etc.</p> <p>Learning process and development of creative thinking are restricted by rigidity in terms of deadlines</p> <p>Interaction between design, technology and materials are regarded in isolation</p> <p>Competent use of technology is stressed</p> <p>Incoherence – limitations in terms of progression from first year to third/fourth year</p> <p>Emphasis on a precursor approach to the development of generic skills – add those on to the existing curriculum</p> <p>Teacher-centred approach to curriculum – emphasis on subject content</p>	<p>approach to teaching: “Textile, it was a bible this thick. It was so scientific that I had Science at school and I couldn’t get my head around this lot ... it was horrendous and I actually missed out a lot because I took that book of mine and I threw it in the bin.”</p>		

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
<p>Less emphasis on coverage of subject content</p> <p>Some integration between theory and practice</p> <p>Need to move away from surface approaches to learning to encourage deeper engagement</p> <p>Make tacit knowledge more explicit</p> <p>Some engagement with industry, e.g. guest speakers</p> <p>Moving away from a textbook type approach of teaching to ensure some engagement with real life problems</p> <p>Developing a sense of awareness of workplace needs, e.g. time constraints, effective communication skills, etc.</p> <p>Awareness of the changing needs of the workplace</p> <p>Adaptability and flexibility</p> <p>Less rigid in terms of deadlines to</p>	<p>Although this Fashion workshop participant acknowledges that there is a need to integrate theory and practice, the following statement indicates that integration is not yet achieved: “But I mean with all of these subjects ... we were handling the areas separately but in fact ,you can’t design if you don’t understand any of the others. You can’t design if you don’t understand both the technicalities which they would handle, if you don’t have the background of the history or the business, the costing and everything, all of that. So it’s really... it’s all interlinked.”</p> <p>Fashion workshop participant calls for making tacit knowledge more explicit: “I think that a lot of the knowledge also for us as experts are so embodied that we’ve almost forgotten and I think that you know the whole thing of looking at – we have certain problems that come up. To stop blaming the students and say how could we possibly do things differently to make knowledge more explicit?”</p>	<p>Fashion workshop participant outlines the design process to illustrate that some integration between theory (e.g. textiles) and practice (e.g. sketching) is happening: “[students] go out and to find those textiles, suppliers, to know what the textile testing is all about. Do store visits, go and see what happens out there. Come back with the information then also the fabric sourcing. Industry visits. This might include a three week visit or might just be a daily visit. Also then to apply all the trends and the details. So while they’re busy playing around with their ideas and drawing pictures and doing the development, they should start getting all this kind of background information to prepare them better for what is coming up ...”</p> <p>Surface design workshop participant outlines the importance of work-integrated learning: “No, Surface Design, I mean you’ve got to join, you’ve got to go to a shoe factory and you’ve got to go on the floor for at least a</p>	<p>Surface Design workshop participant: The role of the teacher in relation to curriculum is to adapt the curriculum according to the needs of the students then you need to be able to identify and develop the curriculum according to their needs.</p>

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
<p>enhance productivity (see comments about deadlines also in the next category)</p> <p>Student-centred approach – meeting the needs of students</p>	<p>Obviously there are different kinds of knowledge and certain kinds of knowledge lend themselves to be transferred in the more explicit manner but I honestly think if we – it will take it from us to really work to try and bring a lot of that tacit knowledge to the surface to say are there ways and means? Is there a vocabulary that we can use or other ways that we can employ to transmit that knowledge, to make – help make it more explicit for our students and I firmly believe that it's possible but it's going to take a hell of a lot of work from us to surface that embodied knowledge and to bring it up again in our own minds. So that we don't make assumptions about knowledge that our students don't yet possess. They will possess it eventually but they do not – we can't expect students to be operating like experts when they're still novices. It's just not possible. So if we are more conscious of that knowledge and how one can sequence that knowledge over the curriculum, I think that we can really help our students."</p>	<p>year to find out how to make shoes, you know and unfortunately there are very few factories that will take people on, I mean there aren't factories, you've got to go to China or Milan maybe for the school, it's out of everyone's reach. But I mean that's how you learn how to make shoes. You go onto a factory and you learn how to make shoes."</p>	

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
	<p>Surface Design workshop participant emphasis the need to move away from a textbook approach to teaching: “One of the points is business. When we got in to the industry, we realized how important Business Studies were. Where we were in a creative industry, I mean creative course we just wanted to draw, make things pretty and colourful, we never thought of business and then you get out there and you don’t know enough because it wasn’t interesting enough. I don’t know exactly how you would make Business interesting. You can give a full rounded project of you know, let’s run this, again bringing that real world hitting them with that because Business is quite important. Again your advertising, your social networking ... you can’t just use a Business Study handbook that you used in the 80’s. It’s changed rapidly.”</p> <p>Surface Design workshop participant: “one thing but the most important thing and that is ...</p>		

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
	<p>the capacity to be critically aware. To be able to conduct yourself in changing situations in surprise moments and still be able to communicate to the audience and to the consumer and to obviously bosses.”</p> <p>Surface Design workshop participant provides a workable solution to find a good balance between extending timelines and still being productive as a designer: “... it needs to have maybe both components, the exploratory component being linked to a longer deadline that could possibly be extended and the delivery component linked to value chain so you know exactly why it’s important to meet that deadline and not go over it.”</p>		
<p>Emphasis on coverage of subject content hardly visible in curriculum</p> <p>Very strong emphasis on integration of theory and practice</p> <p>Deep linkages with industry to</p>	<p>Surface Design workshop participant comments on the importance of linkages with industry: “... it’s also hand in hand with the people from the industry opposed to having the lecturers tell you about, for instance social networking or marketing. A very</p>	<p>Fashion workshop participant: “I think we do start off in our curriculum with first trying to transfer the basic skills and from basic skills students will be very much given the information and given the processes and they will have to follow but from second</p>	<p>Fashion workshop participant: “... the moment you give them something practical to do and they can create – they’re tremendously creative and a lot of good things come out of that.”</p> <p>Fashion workshop participant: “So</p>

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Draft categories of description	Knowing	Doing	Being
<p>encourage deeper engagement of learning</p> <p>Deep engagement with 'real' world issues not superficial</p> <p>Less rigidness in terms of deadlines in favour of the creative process, yet within limits of being productive and reaching goals within realistic timelines</p> <p>Acute/intimate understanding or sense of awareness of customer's needs and how to accommodate this in the design process – this is best supported by 'real life examples'</p> <p>Developing resiliency to 'survive' as designer in the workplace</p> <p>The focus is not on competent use of technology, but technology is seen as an extension of design ability/means of expression</p> <p>Curriculum coherence well established with good progression from first year to third/fourth year</p>	<p>important aspect also is when you are in your third or fourth year and you need to go out - how to sell yourself."</p> <p>Surface Design workshop participant: "... so that holistic picture can be explained from the beginning and you can position your course to your students to not be a 'play play-play arti-farty' but actually showing it's a real business."</p> <p>Surface Design workshop participant comments on her own experience as student in terms of interaction with industry: "I mean speakers from outside came in and it was really the most exciting time, because you really get a sense of really what is out there, what it's about. How it feels to be either running your own business or working for [name of company] or [name of company] or whatever ..."</p> <p>Surface Design workshop participant stresses the importance of workplace learning: "So this kind of industry</p>	<p>year – second semester, I would say it opens up a little bit more and then in third year it's much more creative where students actually come up with the concepts and it even opens up more for exploration in the fourth year, where the whole thesis and everything that they do is their own."</p> <p>Fashion workshop participant indicates the importance of exposing students to 'real' world type problems: "... we would definitely like to incorporate more client type of projects, where students at one level maybe just work with those kind of specs where they have to design for a specific client because we're quite aware that we do lots of free and you're still a student and you can create but we would like to bring that in where you – this is your spec and you stick to that"</p>	<p>I think teaching and possibly as I get older I see teaching as something that happens from a very much a personal perspective but also very much an inter-personal and inter-subjective perspective, where you have to really be open to the needs and the – intuitively open to the needs and what the student needs. So that you can respond in an open and authentic way to that. So you're drawing more things than teaching someone something."</p> <p>Surface Design workshop participant: "I'm just basically saying that a curriculum is ... a social construct, it's selective in other words an ideologized, a selection of reconceptualised in this case, design knowledge ... so as a lecturer you would then guide that selective transmission or acquisition of this knowledge or these different kind – different knowledges in subject knowledge, skills and professional identity ... in order to enter the world of work and obviously that the identity would include their particular</p>

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
<p>Projects are based on realistic expectations of 'real' world clients and not only based on problems with a limited range (look at the classification of Stephenson & Eraut to support this).</p> <p>Strong emphasis on creativity</p> <p>Teaching is seen as emancipatory (inter-personal) dialogic relationship between student and lecturer</p> <p>Embodied value orientation</p> <p>Adaptability is a key focus</p> <p>Lecturer sees his/her role as that of curriculum designer with the flexibility to adapt to changing environment</p>	<p>experience is maybe such a barometer so that if you do go out in industry and you love it from the start then maybe that will also instil in you that sense of okay I'm an industry person, or if it doesn't then you rather would select the alternative route."</p> <p>Surface Design workshop participant outlines the advantages of workplace learning: "I mean things like resilience, cultivating a tough skin, not worrying too much about what others say about you. You know how do you develop your product with and for others if it's a small range? You know it's almost a completely different skill set, is it not? To what you would need in here because here someone will tell you, this is your job card, you need to order 5000 metres of grey fabric from wherever and this is what we can spend and see what you can get, something like that."</p> <p>Surface design workshop participant warns against rigid deadlines that curtails the learning</p>		<p>orientation to really see the world at work. How they are going to use design and approach design, the values ..."</p> <p>Surface Design workshop participant: "Curriculum – have got to prepare adaptable leaders in their chosen field and adaptable learners who use research disciplines who are able to who are able to make decisions ... it must be relevant to the discipline it must be current which is going to mean that the curriculum must have an element of adapting to what is current adding in the current, otherwise we're not going to keep up because things are changing fast, everywhere ... the role of the student is to learn to be exposed to seek exposure to new materials and new learnings and to engage with the material."</p> <p>Surface Design workshop participant: "It gives me freedom in my classroom to construct my own syllabus and to implement it and if I am responsible, which I hope I am, I would set achievable</p>

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
	<p>process: "I have a problem with deadlines versus creativity and development of ideas and they are also working against one another. ... So which is more important? The learning process or the deadline and then I'm saying deadlines are not that important, kick it out. And I'm consciously extending the deadline in favour of the process and in favour of creative development."</p> <p>Another surface design workshop participant agrees, yet cautions that too much freedom can also be problematic: "I agree with that, but I do also think that somehow, it must also be – there must be some limits because I know for myself I don't set limits for myself. And that's where I would have thousands of papers that I'm trying to go through and design and I can't make up my mind ..." This view is supported by another Surface Design workshop participant who indicates: "Part of the skill is that you've got to get to a point where you say this is good enough otherwise you're never</p>		<p>objectives and outcomes and in my case it relates to cognitive development of my students and building on a body of knowledge to encourage critical and creative thinking."</p> <p>Surface Design workshop participant describes the role of students in the learning process as follows: ". So I think for the students it's a process of inquiry, investigations, self discovery hopefully to produce them as holistic people integrating pen and hand, thinking and doing, writing and producing."</p>

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
	<p>going to do anything and we see students who redo and redo and redo and they're not learning that really important thing..." Another Surface Design workshop participant provides a workable solution to find a good balance: "... it needs to have maybe both components, the exploratory component being linked to a longer deadline that could possibly be extended and the delivery component linked to value chain so you know exactly why it's important to meet that deadline and not go over it."</p> <p>Surface Design workshop participant points out: "... developing of sensory awareness in terms of how you read people, profile people, which we in any case should do for our different target markets but by doing that we're talking more and more about the individual. We really need to have the ability to read people and know how to investigate them and how to profile them, so that you can design for them. So the humanity focus becomes so much</p>		

FASHION & SURFACE DESIGN: Summary of HOW of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
	bigger than just designing another product. ... I would imagine that real projects with real situations and real people will actually teach them how to design within a social design context much better."		

FASHION: Summary of WHAT of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
<p>Category A Curriculum is regarded as ‘a given’ more rigid and inflexible – emphasis on coverage of subject content and keeping to what is regarded as ‘tradition’ or established practice. Knowledge is being imparted.</p> <p>Teacher-driven evidence based decision making and problem solving development process</p> <p>Evidence-based decision making Technical rationality Solution focused problem-solving ability with limited exploration present Limited evidence of acknowledgement of contextual aspects influencing design process Collaboration is driven by project brief requirement/solution driven with limited evidence of involvement of personal experiences? Awareness of economic realities through engagement with basic</p>	<p>Fashion workshop participant: “Students very often don’t actually see the skill that they are learning and they don’t establish it. And so, in the first and second year to a large extent and especially, at first year level, it happens quite explicitly where we will say okay guys – let’s really look at the situation critically – let’s pull it apart. What are the different avenues? It’s moved through a funnelling of ideas, let’s reach a conclusion.”</p> <p>Fashion workshop participant: “Financial literacy as we call it here, basic arithmetic, which we find is lacking.”</p> <p>Fashion workshop participant: “And we also talked about numeracy must be developed to a functional level where the students must be able to manage financial and manage the business side of the business and the curriculum must give them the hard scoop, the</p>	<p>Fashion workshop participant: “In pattern construction, what we do is we start off obviously it escalates as we start off but from first year you start with your basic pattern, understanding that there’s basic different kinds of basic blocks that you can – because if you’re in the industry you know you’ve got a fitted block and an over garment block and all sort of blocks. So you start all of that – how to adapt all your blocks, know how to manipulate blocks into – applying into different kinds of styles in between and then also all codes of pattern information because a pattern is not a pattern if it doesn’t carry any information. So in the doing part we will start by drawing basic blocks, understanding the fit and the shape of all the different kind of blocks. Dart manipulations, playing around with that. Then we – these are the different things that we cover over the three years that we’re busy with – we look at bodices – you’ve got sleeves in here</p>	<p>Fashion workshop participant: “Especially if you’re going on your own, you need to know are you going to make – what are you costing – people make the most beautiful garments – they still can’t put a price to it. Even if they’re on their own, so what’s the point? What are they going to sell it for? Are they going to make the money? Are they going to make enough to have enough money by the end of the month?”</p>

FASHION & SURFACE DESIGN: Summary of WHAT of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
<p>knowledge and skills Workmanship? Curriculum elements are more static and fixed – limited scope of exploration Methodical approach – ‘going through the motions’ approach to design, with limited awareness of external influences such as business, market needs, etc.</p> <p>Use of materials – application of material to design process (from the outside type approach) – aspects are handled almost separately and explicitly</p> <p>Use of technology – focus is on being competent in the use of technology, computer software programmes and related aspects.</p> <p>Manufacturing of product is a executed by designer only.</p> <p>Theory and practice not well integrated</p> <p>Specified range of products to be covered in curriculum with</p>	<p>skills in costing and pricing.”</p> <p>Fashion workshop participant: “So you start off with a very – quite a precise brief in your first year you’d have to design this, it must have this and this and this and that and the other in it. But then later on towards third year your brief would become a bit more for the student to decide what to go into the brief, rather than being so specific. So it starts off with basics, going into more of the broader things.”</p> <p>Fashion workshop participant: “There is something about the structure and the separation of theory and the practical subjects and there isn’t a meshing going on and I’m speaking from actual theory but also Design as a subject because I’ve also taught Design and somehow Design is almost treated separately from a skill base things like Pattern Construction or whatever and there’s almost – creativity almost gets stamped out – I find.”</p>	<p>– but we do – on the bodice we do sleeves, collars, centre fronts – all the different parts. Then skirts, pants, dresses, jackets, coats, corsets, lingerie, evening wear and kiddies wear. Now when we talk about scope or the depth and the – the scope and the depth often we feel that we’re doing so much that we can’t really get in too much detail on each of these. So there’s something that you must re-visit and have a look.”</p>	

FASHION & SURFACE DESIGN: Summary of WHAT of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
<p>emphasis on coverage of broad scope. Students are not allowed to choose from range of products – prescribed – no electives</p> <p>Limited ability to see the logical links between design, production, costing and retailing.</p> <p>Portfolio of work demonstrates that student is competent in executing the task at hand, yet lacks personality/personal style/signature</p>	<p>Fashion workshop participant: “But I think the basic problem for us that there’s a huge chasm between Theory and Practice.”</p>		
<p>Category B Organised and systematic approach (systems thinking), yet with more awareness of external influences</p> <p>Iterative process Acknowledgement of contextual aspects influencing design process</p> <p>Collaboration is based on abilities of those in the group?</p> <p>Economic realities?</p> <p>Workmanship?</p>	<p>Fashion workshop participant: “critical that students have better knowledge and be in touch with, especially the external environment”</p> <p>Fashion workshop participant: “The client is a very important part in Design, getting to know your client, design context, the brief and the client.”</p> <p>Fashion workshop participant: “You referred from concept to product, we say yes, product, concept to product, but linking it to</p>	<p>I just think on the – from being the student – I think sometimes that you’re saying you learn that while on the job and it’s true but you know what – that you know – the students don’t want to do these things but they are actually so important, problem solving, people skills and managing people. Every day in the clothing industry – on the manufacturing side you have to solve a problem. Every single day. Design a drawing, to make the drawing doesn’t take that long, to make it a reality and it takes a long of these things, I never</p>	<p>Fashion workshop participant: “... the shallowness of their understanding of life leads to great ethical shortcuts, taking a lot of extra shortcuts and there’s the culture we try to, which sits very strongly with a lot of students because there is very little accountability from the point of view of somebody who has not obtained the marks they thought they were entitled to. So there is this constant process of re-negotiation of my marks and I think that’s borne out of the South African concept of - the one thing</p>

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Draft categories of description	Knowing	Doing	Being
<p>Client-focused needs</p> <p>Improved understanding of business, marketing, costing aspects and links to technology and materials</p> <p>Professional identity is influenced by a narrow view of economic realities and external factors</p> <p>Curriculum lacks coherence – seen as compartmentalised units of learning</p> <p>Portfolio of work meets the assessment criteria of the programme yet lack a personal style/signature</p> <p>Use of technology e.g. software programme is used to improve student's design ability (means to an end type attitude)</p>	<p>end of market. So we have to have students that have a good idea of the process, the production process linked to time management, what must happen where, so that we can get a product to market and obviously that will link in with marketing and the costing as well of products.”</p> <p>Fashion workshop participant: “You referred from concept to product, we say yes, product, concept to product, but linking it to end of market. So we have to have students that have a good idea of the process, the production process linked to time management, what must happen where, so that we can get a product to market and obviously that will link in with marketing and the costing as well of products.”</p>	<p>took note of these things when I was a student and now everyday that – I'd work with costing, what is the price, what is the problem, how are we going to solve this? How am I going to get the people to work with me to solve the problem? It's 70% of the day. So I just think you know, students don't realize how important it is and I don't think there's enough emphasis on this and they should be – they should be told from the word go that that is actually what your day is going to be like [inaudible] but it should – we, we tend to ignore that because you want a design and at the day once you've done the drawing, what now? And then all these things are so important and the quicker [talking together]. From the beginning if they know about it and the reality of it I think they will be better prepared – not knowing everything but knowing that that is what they're going to do deal with on a daily basis.</p> <p>Fashion workshop participant</p>	<p>we have is the right to protest and we've taken that to its logical conclusion and we protest at every given moment and nothing gets done except protest. And that comes out in a variety of ways.”</p> <p>Fashion workshop participant: “There's also the thing that I think there is a different approach where fashion students would say to you, you know, why must we do this practical subject, or this theory subject? I want to become a designer. I don't want to do Science one day. I'm going to hire an accountant to do it for me. So it's that sort of very simple approach to what life is about.”</p> <p>Fashion workshop participant on group work issues: “I did that project in jewellery where you've got somebody doing research, another person doing drawing and design or designing from that research, another person doing a drawing and it was a brilliant learning tool, because then you didn't research enough for me.</p>

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Draft categories of description	Knowing	Doing	Being
		<p>emphasises the importance of a portfolio of work that distinguishes the student from the rest: "... the whole kind of research through to the concept through its drawing, through to CAD and Illustrator and Photo Shop skills is a universal path for a creative designer and if they want a desk job within a fashion house, if they can draw these – even if they're not naturally really communicative, that portfolio is going to talk for them and I just said if they haven't got stunning portfolio to go ... that they're going to be beaten by - the competition."</p> <p>Another Fashion workshop participant supports this view: "They need to understand their customer. If they want to go and work for – do their own, like Gavin Rajah [well-known SA fashion designer] and kind of couture they have to know their customer ... that may be where they have to start making decisions early enough so that you can tailor their portfolios accordingly and get their</p>	<p>What am I supposed to do? So then they – it would teach them what was required for that part of the process. And I'm completely there I think that's a fantastic way because then people are – learners are going to – they're going to after what they need to know instead of just being spoon fed."</p> <p>Fashion workshop participant: "What's also important is collaboration because part of their research is individual but it's also team work. So they do presentations as well and the process of doing is scaffolded from the first year to fourth year, which is also sequenced."</p>

FASHION & SURFACE DESIGN: Summary of WHAT of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
		<p>mind-set to understand what they're researching ..."</p> <p>Fashion workshop participant on the integration of business aspects in the curriculum: "Ideally they should also have an idea of what the economic situation is because they can't be away from it. So it's a whole lot of practical stuff and evidence numeracy and evidence of their ability to handle information and analyse it and the information is financial."</p>	
<p>Category C Curriculum is regarded as flexible and influenced by external factors</p> <p>Synthesis and limited manipulation of multiple contextual aspects</p> <p>Deeper engagement (enrichment) with contextual aspects influencing design process</p> <p>Influence of lifestyle on design</p> <p>Personal lens of designer and design team</p>	<p>Fashion workshop participant: "... when it comes to fourth year, it's driven by the students where their critical thinking is determined by the types of questions they ask and they've got to ask probing questions. What and why questions and their final question has to be a how question, which is a solving question and that's carried through into their product development."</p> <p>Fashion workshop participant: "It's more about interpretation of</p>	<p>Fashion workshop participant: "They need to understand their customer. If they want to go and work for – do their own [name of famous fashion designer] and kind of couture - they have to know their customer and that – that may be where they have to start making decisions early enough so that you can tailor their portfolios accordingly and get their mind-set to understand what they're researching and [talking together].</p> <p>Fashion workshop participant on</p>	<p>Fashion workshop participant: "students don't feel that they are re-doing something all the time ... they feel that they're in a process and in a journey".</p> <p>Fashion workshop participant: "So, our basic outcomes are to link past and present to establish global networks and a sense of belonging for students to establish a sense of presence and of being, cultural universals and understanding archetypes, consciousness and a sense of evolution, how there's a</p>

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<p>Some reflection evident Uniqueness to product development focus</p> <p>Personal experiences more prominent</p> <p>Economic realities are linked to product development & understanding of customer needs with a stronger entrepreneurial focus</p> <p>Workmanship?</p> <p>Group work with acknowledgement of multi-cultural richness supported by attempts to breakdown 'cultural divides' through group work, yet with limitations.</p> <p>Portfolio of work is well executed yet with less emphasis on a personal style</p> <p>Use of technology is at an advanced level of mastery, yet the use of technology does not drive the</p>	<p>financial data to be able to make strategic decisions based on information available to them.”</p> <p>Fashion workshop participant: “The political, economic, social, technological environments in which we operate and also your internal environments within an organization or within a sub-system so that they know how they can manipulate these things to – in terms of a strategic swot analysis, to be able to identify opportunities and the threat in the organization. And then also being linked in here as well and the whole aspect of social entrepreneurship, community interaction.”</p> <p>Fashion workshop participant: “ ... we provide historical studies which give environmental, social, political, material, culture and also cultural background to specific periods. We provide academic skills which relates to the doing aspect and integrated with this is the cognitive development.”</p>	<p>encouraging advanced thinking of business decision making from an entrepreneurial perspective: “Usually in third year I give them one [project] in the beginning of the year which is on a business of their own choice, an existing business and then after that they’ve got to do one on – and to be established business where they would present the business plan to a financial institution to get money. So then they had to do a much more comprehensive thinking process about what they – the business they want to start up.”</p> <p>Fashion workshop participant: “... it’s a very broad dictation by the university that we have to have students to interact on a social basis as well, to try break down the silos in our cultures, you know the sub-cultures ... so that people understand one another because ... in the real life you’re going to work together one day ...”</p>	<p>sense of progression, ja. Progression - life - to encourage life-long learning and a sense of inquiry and inquisitiveness, which leads to self-motivation.”</p>

FASHION & SURFACE DESIGN: Summary of WHAT of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
design process	<p>Fashion workshop participant describing academic staff members' approach to contextual studies teaching: "We look at broad trends and also trend cycles which also involved events – re-occurring events around social environmental and political factors. So that's our knowledge based and a lot of the supporting theory is either a systems theory ..."</p> <p>Fashion workshop participant: "... they should also be able to interact with communities, cross cultural enrichment if we can call it that. We feel that should become a very important aspect in this process."</p> <p>Fashion workshop participant: "...we have to have students to interact on a social basis as well, to try break down the silos in our cultures, you know the sub-cultures, to bring – so that people understand one because you – in the real life you're going to work together one day."</p>		

FASHION & SURFACE DESIGN: Summary of WHAT of knowing, doing and being

Draft categories of description	Knowing	Doing	Being
<p>Category D Freedom of design expression Embracing risks</p> <p>Willingness to try new things & think beyond traditional outcomes</p> <p>Following and developing an emergent design path</p> <p>Novel outcomes</p> <p>Ability to 'read' the market place and to respond with novel ideas and innovative products.</p> <p>Strategic engagement with business decision making process</p> <p>Open-ended & flexible approach to curriculum design</p> <p>Design thinking as embodied experience</p> <p>Adaptability to meet the needs of a changing world</p> <p>Use of material – inherent to the design process (from the inside</p>	<p>Fashion workshop participant: "I'm constantly revising my own syllabus ... to make sure that I bring in new issues all the time"</p> <p>Fashion workshop participant: "...identifying the gap in the market place or reading the market place"</p> <p>Fashion workshop participant: "And that's what's shocking because what industry is going to be in five years given global trends, given technology, I don't even, nobody knows. It is – the change is so, so rapid that I think we actually need to question everything that we do."</p> <p>Fashion workshop participant: "...they [students] start with design and then go look for fabric, it's all about the fabric. It's all about the fabric and knowing buying this, knowing what to do with it and the cost, you need to know your price ..."</p> <p>Fashion workshop participant: "So it's equipping them to deal with the technology, social media, all those</p>	<p>Fashion workshop participant: "... ultimately to make the whole three processes fit together and make one big picture out of that ..."</p> <p>Fashion workshop participant explaining the design process in fashion patternmaking: "It's like Art, it's a feeling that you have to start putting into it. It's that non-verbal communication. It's that – if you draw the line this way or that way it makes a difference and it's not something that you can explain and put on a piece of paper."</p> <p>Fashion workshop participant indicates that students are encouraged to allow others to make up the final product: "Also lately, we've now moved into a student making a pattern that they can actually give to somebody else and say cut it and make it for me. Because often we have found that the information and the detail on that pattern is not so – ja - not so clear – or it's not comprehensive enough to actually CMT it out to</p>	<p>Fashion workshop participant: "Also if the curriculum is contemporary and that it's relevant for what's going on now in now in the world and therefore is evolving and changing – it's not a static thing. It's flexible."</p> <p>Question (MB): "On the contemporary issue whose voice brings the contemporary issue into the curriculum? Your voice as the teacher or the student's voice or both?"</p> <p>Fashion Workshop participant: "I think it's often initiated by the teacher because it's more topic driven rather than coming from a historic content. So the topic is a relevant 20th century issue that is presented to them and then they scratch below the surface and then they explore it from whatever viewpoints they've revised [indistinct]. So it's not – it's not establishing okay this is the contemporary example, the contemporary problem, this is relevant, okay this what you will look at and this is what you will</p>

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<p>type approach) – tacitness & implicit meaning attached to use of materials</p> <p>Design inspiration is born from a deeper understanding of the historical context and how it relates and influence current trends</p> <p>Use of technology is central to design process, yet supported by an understanding that technology is merely a tool/medium for executing the design project. Students do not necessarily make up the design products themselves but the actual manufacturing process is delegated to others under the guidance of the designer thus shifting the responsibility from producer to manager.</p> <p>Effective communication between designer and those manufacturing the product</p> <p>Synergistic relationship from concept to product development including design, technology,</p>	<p>platforms that are already out there, they're practicing and it's real live, it's out there in the world."</p>	<p>somebody else. So this is also a new development. How to..."</p> <p>Fashion workshop participant: "Oh hanger appeal and the final garment and here we talk about displaying the patterns, also presenting the garment to the client making sure that it looks well. Fit sessions to look on your final garment and then also to evaluate if your original design and your final garment actually come together and end up as the same thing. Now this is very quickly – I tried to make it quickly because of time. But this is normally a dovetail between patterns and garments and how the whole process works."</p> <p>Fashion workshop participant: "That project where the – I think mixing of the student and the pattern and the – you make the design – you can make the pattern and then somebody else must cut it - make it up for you. I think that is so crucial because within the design you don't make – we've got</p>	<p>find and say this is what is happening, now you go out and explore what that theory or what this contemporary [inaudible] means to you, what is the relevance? What is the situation around it. So I would definitely say both."</p> <p>Fashion workshop participant: "Main focus of teaching to transform individual to a strategic thinker, student graduate will be able to earn a living – important – I think that's where the whole entrepreneurial thing comes in. Practicals, doing your application, ability to use information analytically. Do own costing and pricing, budgets."</p> <p>Fashion workshop participant: "If you look at the research on Generation Y, international. They are - they are – they are very happy to work with peers. They hate authority figures, they don't understand why you should tell them what to do. There's an incredible sense of entitlement</p>

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<p>techniques and use of materials to meeting customer needs.</p> <p>Reflective process to evaluate effectiveness of design process and product qualities</p> <p>Curriculum is regarding as an evolving process with a dynamic interaction between the teacher, students and external influences impacting on the curriculum</p> <p>Transformational process is taking place in terms of identity development</p> <p>Ability to see the integration between design, production, costing and retailing</p> <p>Acute awareness of sustainability and related issues that are well integrated in curriculum</p> <p>Inter-disciplinary aspects are strengthened in the curriculum</p> <p>Emphasis on the embodied experience of design – tacit</p>		<p>pattern makers – I’ve got sample machinists but you manage the whole thing and I think if somebody else sews up your garment you will be much more quality conscious and show mistakes and be – manage your garment better than when you make it yourself. But just think that should – I think...</p> <p>No, but do you give the students one another’s work to sew up? That I think you must do, when if you’ve got three students everybody must make up somebody – and you manage that person as the machinist. No but [talking together] they’ve got management, what management skills and that is people skills and communication and all that – the better you communicate the better you manage, the better you work with this person. You’re going to work for the sample machinist, you’re going to work with production line and you’re not going to sew but you have to give clear instructions and you have to</p>	<p>internationally.”</p> <p>Fashion workshop participant: “Strategic management and leadership skills will come in later in the programme, because you need to get – understand all the different management functions to be able to put it all together in the long run.”</p> <p>Fashion workshop participant: “I think he wants the staff to start somewhere when they finish this course and they must understand they’re going to start right at the bottom. For them to understand how retail works or how manufacturing works, or how to work your own business, all of that makes sense because the retailer will buy it on at a certain price. He will have certain ratios. He will have certain way of working out his break even and working out his pricing and if they don’t understand how the retailer gets to their price then they’re also not going to be able to understand what they’re doing.”</p>

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<p>knowledge is expressed through implied action Portfolio clearly shows the individual style of the designer</p> <p>Developing a 'global' identity as designer</p> <p>Developing sensitivity in relation to their sense of identity as a designer</p> <p>Holistic perspective is being developed</p> <p>Contributing to the development of a legacy</p> <p>Design is not produced in a 'vacuum'</p>		<p>say- I expect the following things to happen and you have to quality control the garment. I just think it's going to be and that mustn't happen - it must happen in second year so that they actually start getting into it and there's nothing wrong with that and I think they shouldn't have a choice I think, that's just something that is part of a project."</p> <p>Fashion workshop participant: "... encourage students to participate in practical applications ... see the gap in the market and again its strategic ... to be aware what's happening out there, to see a place where I can make a living ..."</p> <p>Fashion workshop participant on the development of a synergistic relationship between three processes in fashion design: "... the main focus for our practice is to teach students good quality ... and ultimately to make the whole three processes [design, patternmaking, garment construction] fit together</p>	<p>Fashion workshop participant: "Reflection to be able to also stop and review what you've done, assess that before you move forward, global identity in the sense of using technology and how we are a global village and students actually need to consider what they produce for a global market. Ja, global community, engaged responses, contribution and a sense of responsibility and also I think accountability."</p> <p>Fashion workshop participant: "Probably ja, and also I think a sensitivity is - it's important in a lot of ways to make them aware that they need to be sensitive to certain things, whether it is the people that you're working with, the clients that you're working for, the subject that you're dealing with that you know, yes, you are an amazing, creative, wonderful person and you're perfect in every way that exist, but you can't steam roll with that attitude into the rest of the world."</p>

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		<p>and make one big picture out of that ...”</p> <p>Fashion workshop participant emphasises the tacitness of the design process: “... the work that we do and the knowledge that we try and instil in students often it’s not something that is a written and a theoretical component ... it’s like Art, it’s a feeling that you have to start putting into it. It’s that non-verbal communication. It’s that – if you draw the line this way or that way it makes a difference and it’s not something that you can explain and put on a piece of paper ...”</p>	<p>Fashion workshop participant: “I think with quite a bit of the theory its almost if you imagine the person and you imagine the camera zooming out and showing them an aerial shot. That’s very often what this is. It’s the aerial shot of your discipline. It’s where it’s come from and where its going and what is influencing it? What is your role in it? To make them understand that they are a part of a professional discipline, with a history, with a future, with a theory underpinning it but, yes, being able to make the garment and make it really well is a big part of it, but that’s not what Fashion is.”</p> <p>Fashion workshop participant: “Well it’s about being able to join the conversation and not simply thinking well I can make things and that’s my role. Your role’s bigger. Yes, you make things but why do you make things? What do those things contribute? What do they mean and what is their legacy? Where do they come from?”</p>

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			<p>Fashion workshop participant: “And I think ultimately design is not produced in a vacuum and at third year, I begin by asking students to go and find out what’s happening, to identify with certain designers and to start developing a knowledge of what is current. So that whatever they produced is in relation to that and I think I mean I don’t know how the creative aspect is initiated but I think there’s often a danger of design being repeated and so students need to know what’s happening and where do I stand in the current contest.”</p>