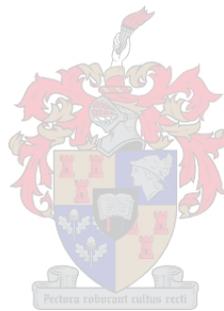


**The role of cooperative learning in fostering creativity
within a fashion design context at a private higher education institution**

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Thesis presented in partial fulfilment of the requirements for
the Master in Philosophy (Higher Education) at Stellenbosch University

Supervisor – Prof B.L. Frick

April 2019

DECLARATION

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I thank God for the energy and commitment He gave me until the end of this study. It was a challenge but with Him beside me, nothing could stop me.

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To all my valued colleagues, thank you for your constant support, especially during frustrating times.

I dedicate this work to my late dad; you always encouraged us to improve ourselves through learning no matter how challenging. My whole life you believed I could do anything.

ABSTRACT

Enhancing creative abilities of students leads to overall individual success, business success, and competitive advantage. This study explored the possibility of cooperative learning fostering creativity in the Focus on Production module at a PHEI (private higher education institute). A case study methodology was chosen as the most appropriate research methodology. The “case” in this study was the 2018 third-year students at the PHEI who worked in a natural setting of the third-year production classroom. Using a case study provided an in-depth understanding of data collection and analysis of cooperative learning. It was of interest to explore how, if at all, the use of a group activity could generate new ideas or products, as this could assist students develop the skills necessary for being successful in the fashion industry. A pilot study was conducted to test whether the data-collection tools were appropriate. Qualitative data were collected in the PHEI’s production classroom where the activity was conducted. This allowed an in-depth exploration and description of selected participants’ experiences, in working within a group. For the group activity, the intention was for the students to follow a process to achieve an end product. The results of the observations lead to the conclusion that the cooperative learning strategies used in this study facilitated participants’ motivation to learn, and better understand group work tasks in the given context. A cooperative learning approach can help prepare students for the fashion industry. The study findings can assist work colleagues at the PHEI to develop knowledge, skills and abilities in accordance with the current work requirements.

OPSOMMING

Verskerping van kreatiewe vermoëns by studente lei tot oorkoepelende individuele sukses, sakesukses, en 'n mededingingsvoordeel. Hierdie studie ondersoek die moontlikheid om kreatiwiteit in die module Fokus op Produksie te bevorder, deur middel van koöperatiewe leermetodes. 'n Gevallestudie metodologie is gekies as die mees gepaste navorsingsmetodologie. Die "geval" verwys na derdejaarstudente aan 'n privaatinrigting vir hoër onderwys (PIHO), werksaam in die normale omgewing van die derdejaars-produksieklaskamer. Die gebruik van 'n gevallestudie het my gelei tot 'n diepgaande begrip van data-insameling en die ontleding van koöperatiewe leer. Dit was vir my van belang om te ondersoek hoe, of indien wel, groepsaktiwiteite nuwe idees of produkte kan oplewer, aangesien dit studente kan help in die verwerwing van vaardighede nodig vir sukses in die modebedryf. 'n Loodsstudie is gedoen om gepaste data-insamelingmetodes te toets. Kwalitatiewe data is ingesamel in die klaskamer van die PIHO waar die aktiwiteit uitgevoer is. Dit het diepgaande verkenning en beskrywing toegelaat van geselekteerde deelnemers se ondervinding van groepwerk. Die doel van die groepaktiwiteit was dat studente 'n proses volg om 'n eindproduk te verkry. My waarnemings het my tot die slotsom gelei dat koöperatiewe leerstrategieë soos in hierdie studie gebruik, deelnemers se motivering om te leer kan fasiliteer, en hul 'n beter begrip gee van groepwerk binne die bepaalde konteks. 'n Koöperatiewe leerbenadering kan studente lewer wat voorbereid is vir die modebedryf. Die bevindings van hierdie studie kan van nut wees vir my mede-dosente by die PIHO in die ontwikkeling van kennis, vaardighede en vermoëns in ooreenstemming met huidige werkvereistes.

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CHAPTER 1

ORIENTATION TO THE STUDY

1.1 Introduction and rationale for the study

Traditional methods of teaching in higher education, such as the lecture, cannot be considered the only method of instruction. Barr and Tagg (1995:13) refer to a paradigm shift from the traditional instructional paradigm to a more “learning-centred paradigm” that facilitates learning for every student by whatever resources are best suited or required. The outcome of a paradigm shift is highlighted, in that cooperative learning supports a learning-centred paradigm (Bitzer, 2004:45). The outcome of the change from an instructional paradigm to a learning-centred paradigm, liberates institutions from a set of difficult limitations. This means that institutions can accommodate a set of diverse students in terms of their motivations, aspirations, expectations, cultural backgrounds, first language, and range of abilities (Gravett, 2004:23). For students to have a competitive advantage in the work environment, they need to be team players and to show creative skills (Garnett and Pelsler, 2007:52). Garnett and Pelsler (2007:52) suggest that creativity should be defined as developing something or acting in a way that possesses a distinctive, unique or new property (idea). Sohn and Kim (2016:59) indicate that through research in apparel (fashion), design educators found that cooperative learning strategies (problem-based learning, collaborative learning and team-based learning) supported learning in this context. However, the researcher’s experience as a facilitator at private higher education institutions (PHEI) for 17 years has shown me that such understandings do not always translate into practice.

Currently the researcher is a senior facilitator and head of department for the Focus on Production (pattern and garment construction) module at a PHEI. A problem encountered in the module is the difficulty students’ face in interpreting a technical drawing, image, or flat drawing into a three-dimensional final product (in the form of a fitted garment). The researcher decided to explore the role of cooperative learning in fostering creativity using this problem as a starting point for the activity – with the focus of the activity progressing toward a final outcome or product through students working in groups (see appendix 2 and 7). This PHEI (hereafter the “academy”), where the study was conducted, offers an accredited three-

year Diploma in Fashion. This is a practical programme with smaller theoretical components. The academy comprises local and international students and facilitators that have an extensive background knowledge of the fashion industry. The PHEI works on a six-week cycle: three cycles in semester one and three cycles in semester two. The Focus on Production (pattern and garment construction) module is one of the main practical modules that students have to successfully complete before progressing to the next level. This module makes up two weeks within each cycle and is a practical module with limited theory. In the first-year production curriculum, students learn the basic theoretical and technical methods for the construction of a garment (product). In the second-year production curriculum, students learn new technical methods and construct garments of higher complexity. The second-year student can use methods learnt (previous knowledge) in first year for the construction of garments. The third-year curriculum consists of four weeks (cycles one and two) of learning new technical methods of construction. Third year students also have to experiment with a combination of the new techniques and previously learnt techniques. In the next eight weeks (cycles three, four, five and six) of production, students are required to construct a range of garments using previously learned knowledge and new knowledge, with limited facilitation. The PHEI third-year production classroom is equipped with essential industrial sewing machines, cutting tables, individual student tables and a whiteboard.

As a facilitator, developing a project using cooperative learning to foster creativity can be a beneficial experience for both the researcher as a facilitator, and the students. It was thus of interest for me to further explore how, if at all, group members working in a group activity could generate new ideas or products – as this could assist students develop the skills necessary for being successful in the fashion industry. The intention of this study was therefore to explore how, if at all, cooperative learning could be used to foster creativity within a fashion design context at a PHEI. Emerging from this plan were key concepts such as cooperative learning, creativity, and the facilitator role.

1.2 Key concepts

1.2.1 Cooperative learning

Cooperative learning can be described as the instructional use of small groups of learners to empower them to work together in order to maximise their learning and that of others

(Johnson, Johnson and Smith, 1991:5). Johnson, Johnson and Smith (1991:5) point out that such learning produces higher achievement, positive relationships among students, and healthier psychological adjustments than competitive or individualistic experiences. The researcher therefore argues that cooperative learning could be an instructional method in which students work together as a team that could facilitate the achievement of a creative outcome or product.

1.2.2 Creativity

Alhajri (2013:26) suggests that creativity is located in a person, process, or product. Other researchers have defined creativity according to the process itself – which is “the emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand, and the materials, events, people, or circumstances of his/her life on the other” (Rogers, 1954, as cited by Amabile, 1988:126). Amabile (1988:126) mentions that some researchers focus on a product (idea)-orientated definition: “creativity is the production of novel and useful ideas by an individual or small group of individuals working together”. The product is viewed as creative by people familiar with the field in which it is produced (Amabile, 2012:3). In the context of fashion design, examples of a creative product can be a design storyboard, constructed garment, a business plan, or an art collage that has followed a process to completion.

With the current apparel market being competitive and unpredictable, creativity is important and warrants attention (Boon and Dochy, 2016:2). A student who displays creative characteristics is prone to adapt positively to society without having to conform, and can adjust to changing environments relatively easily and in a creative way (Rogers, 1954, cited by Sternberg, 2006:381).

1.2.3 The facilitator’s role in learning

The role of the facilitator must be to help students construct their own knowledge, whereby the facilitator and students are actively engaged with one another in constructing knowledge and understanding (Johnson, Johnson and Smith, 1991:98). McWilliam (2009:287) suggests that facilitators must be a “Meddler-in-the-Middle” and must be mutually involved with students in assembling and/or dis-assembling knowledge and cultural products. There is no doubt that mutual engagement between students and the facilitator is an important part of

educators' personal and professional development. Engaging in cooperative probing allows students and the facilitator to work toward an effective shared understanding of the object of learning that is being explored (Gravett, 2004:29).

1.3 Statement of the research questions

The central research question for this study is:

How, if at all, can cooperative learning foster creativity within a fashion design context at a private higher education institution (PHEI)?

The study also addressed the following sub-questions:

1. What learning strategies can foster creativity in the cooperative learning?
2. What learning activities could foster creativity in the cooperative learning?
3. What facilitator roles can foster creativity in the cooperative learning?

1.3.1 Research sub-question concepts

For this study, definitions and explanations of the concepts, strategies, activities and learning are provided in order to understand the sub-questions. Mintzberg (1987:11-17) presents five definitions of the word 'strategy' as the five "Ps of Strategy". Firstly, strategy, as a plan, is a consciously intended course of action, guideline or a set of guidelines to deal with a situation. Two essential characteristics of strategy are that an initial plan should be finalised before action is applied. Consciously and purposefully, the plan needs to be thought through, as it takes you from the current position to what the end goal is. Secondly, as a plan, a strategy can be a ploy intended to outwit an opponent or competitor and is seen as a threat to opponents and competitors and not seen as the expansion of the plan itself. Thinking one-step ahead can help take control of the situation. Thirdly, defining strategy as a plan is insufficient; therefore, a definition that encompasses the resulting behaviour is required. This leads to strategy as a pattern – specifically, a pattern in a stream of actions. In this definition, strategy is consistency in behaviour, whether intended or not. However, labelling strategy as a plan or a pattern exposes the question: strategies about what? The strategies can be about anything, such as products, processes, people, self-interest and social responsibilities. The pattern part of strategy allows for observing what the current situation is, in order to influence patterns into future successes. By observing the current situation, one can identify

what has worked in the past and then make adjustments if necessary to those patterns. The fourth definition is that strategy is a position – a means of locating an organisation or environment. Strategy as a position is seen as the mediating force between the internal and the external contexts. Strategy as a position is compatible with strategy as a plan, ploy and pattern. A position can be preselected and then aspired to through a plan or ploy, and can be reached through a pattern of behaviour. Positioning can be viewed for example, in terms of the quality of product that will be produced and one's position must be intentional rather than accidental. Finally, strategy is a perspective in that one looks within the current environment, and its content consists not just of a chosen position, but also of an entrenched way of perceiving the world. One's perception of the external environment can influence the internal environment. Developing a new product or enhancing a current product depends on the perception the current environment takes. Mintzberg (1987:17) indicates that the above definitions can be inter-related, so creating a holistic, logical vision that includes basic principles, commitments, norms and decisions. A simplified definition for strategy is a plan of action designed to achieve a long-term or overall aim. The researcher applied Mintzberg's 'five Ps of Strategy' as a guide for this study within the PHEI environment.

For the purpose of this study, the word 'activity', as used in the definition, can be described as the quality or state of being active (Merriam-Webster online dictionary, 2018). The activity includes behaviour of a particular kind, such as physical activity or economic activity. Natural or normal functioning can include a process that one participates in as a benefit of being alive. The definition also includes a form of organised and supervised action. The research questions incorporate a plan to develop an activity for participants to be actively engaged in learning. Learning is the act, experience, or study of acquiring knowledge and skills, and can be acquired through modification or behavioural change (Merriam-Webster online dictionary, 2018). Gravett (2004:24) indicates that the focus of student learning is the relationship between the context of learning (including teaching) and the type of learning that students engage in. Students can adopt a deep learning approach in order to understand underlying meanings or adopt a surface learning approach, whereby the student focuses only on the characteristics of the situation (Gravett, 2004:24). The choice of the research design is built on the philosophical assumptions the researcher brings to the study, the type of research strategies

used throughout the research, and the specific methods used to conduct these strategies (Creswell, 2009: 3-4), which are discussed below.

1.4 Research methodology and research design

The study is positioned within the interpretive research paradigm. The interpretive paradigm allows educational researchers to view the world through perceptions and experiences of the participants (Willis, Jost and Nilakanta, 2007:6). Interpretivism contributes to constructivism (students construct knowledge and meaning as they learn), and interpretivists believe that reality is constructed by social actors and people's perceptions of that reality (Wahyuni, 2012:71). In the context of this study, this paradigm highlighted the need for participants to be allowed to be actively involved in the learning process – rather than being inactive learners. The researcher asks herself as a facilitator – how can learners be developed to be actively involved in their own learning and not to be reliant on the facilitator?

The research methodology used in this study is a case study. The case study – as a research strategy – focused on exploration to gain an understanding of the dynamics present within single settings (Eisenhardt, 1989: 534). Gillham (2000:1) states that a “case” can be an individual, group, institution and a large-scale community, and refers to these as single cases. In this study, the third-year production learners were the “case”.

Qualitative data were collected from focus-group responses and participant observations. An end product (garment) with its documentation was also assessed as evidence, according to a set of criteria for the purpose of the PHEI requirements. Data were collected in the natural setting (the PHEI's production classroom) in which the activity was conducted. This allowed for an in-depth exploration and description of selected participant experiences in working within a group and demonstrating their actions (Henning, Van Rensburg and Smit, 2004:3-5). The qualitative data collected were analysed using content analysis (see section 3.6) to provide knowledge and understanding of the phenomenon being studied (Hsieh and Shannon, 2005:1278). The qualitative data analysis was to discover patterns, concepts, themes and meanings from the data collected. Pre-determined concepts were used. This will be further explored in chapter 2.

1.5 Sample group

The third-year students registered at the PHEI for the level 3 Diploma in the Fashion Design programme in 2018, formed part of the sample group for the study.

1.6 Quality indicators

This study was guided by the quality criteria suggested by Lincoln and Guba (1985: 289-337) and described by Flick (2009:392) and Vosloo (2014:330). Research trustworthiness must be established by using the following strategies: credibility, dependability, transferability, confirmability, and self-reflexivity (see section 3.7).

1.7 Ethical considerations

Ethical approval for this study was received from the University of Stellenbosch and permission to conduct the study was obtained from the PHEI (see appendix 8). All relevant ethical considerations pertaining to the research study were discussed with all participants, and these were included in the consent forms. The principles and ethical standards as outlined by the American Educational Research Association, approved by the AERA Council in February 2011 (AERA, 2011), were adhered to.

The purpose of this study was, for educational reasons, to complete a thesis in order to attain a Master in Philosophy (Higher Education), and then possibly to use the results to form part of curriculum development (Focus on Production module) at the PHEI. Personal bias was minimised by communicating the reasons for the study to participants as part of the researcher's commitment as a researcher and production facilitator. To further minimise personal bias, the researcher acted openly as a representative of an "insider" position, which enabled an understanding of the PHEI cultural context and attempted to reveal the actual picture of the activity. The researcher's responsibility from the onset of the data collection was to all stakeholders (PHEI, students, Stellenbosch University, work colleagues and the researcher). The relevant stakeholders were informed of the research questions before the implementation of the activity. Data collection was initiated once ethical clearance was received. Ethics in data collection were taken into consideration at each stage of the research process, in that there were negotiations that gave participants the opportunity to continue with some stages of the study or to withdraw from the study. In terms of using qualitative

data, the researcher considered the ethical implications in data gathering to ensure that no harm was caused to stakeholders. The following principles of ethical research were applied in this research study:

1.7.1 Informed consent

The participants (study sample) were all older than 18 years and therefore did not require parental consent. Informed consent from all participants was obtained (see appendix 9). All participants had the right to voluntarily consent or decline to participate, and had the choice to withdraw their participation without been penalised. The participants were briefed verbally of the research to be conducted and were given an opportunity to ask questions related to the study. Consent forms were handed out prior to the activity. The researcher ensured that no participant was put in a situation where they could be harmed as a result of participation, both physical and psychological.

1.7.2 Confidentiality and anonymity

All participant details remained anonymous throughout the study and participants were informed about how the data would be used. Because the study also forms part of the institutional assessment, the participants' end product was known to the researcher for assessment purposes. All other documentation remained anonymous and confidential. Each member was assigned a code - e.g. Respondent 1, Respondent 2 – in order for group members to fill in required documents. Observations by the researcher meant that the participants were known to the researcher, but their identity remains anonymous in the reporting of the study. All digital work (data collected) or assessment was placed on the PHEI's server and access was limited to the researcher and the PHEI's lecturing staff. Documents (hardcopies) submitted for this study are locked away and are only accessed by the researcher.

1.7.3 Participant protection

The researcher ensured that the workroom setup was conducive for pursuing the research study – to minimise physical harm to the participants. From a psychological point of view, the diversity and sensitivity of participants was considered. To re-iterate – participants could withdraw from the study at any time during the activity process. Any issues that arose during the study were dealt with immediately. The issues related to participants requiring further clarification of elements of the activity.

1.7.4 Researcher positionality

An important aspect of qualitative research is the role the researcher plays in the process. The researcher acknowledged that she was the primary instrument for data collection and analysis in case-study research, and considered her biases, limitations and views throughout the data collection, analysis, interpretation and the reporting phases of the process. To enable readers of qualitative studies to evaluate the trustworthiness of findings drawn from data, researchers should, as part of the study, cancel out their biases by sharing their personal experiences and insights – in order to locate the inquiry within the study (Altheide and Johnson, 1988:592). For this study, in the interests of disclosure and to guard against unethical or unintentional influences on the researcher's interpretation of the data, the following outlines the researcher's experiences relevant to this study. The researcher has been a facilitator for 17 years at two PHEIs, and has worked with first-, second-, third- and fourth-year students in the fashion design context. The researcher's commitment to student learning was developed from experiences of facilitation and observing the methods of facilitation of colleagues. The researcher acknowledges students as individuals requiring different needs and accommodates their needs within the classroom environment. The researcher's experience helped her identify the students that required more assistance and students at risk of failing. Students at risk are informed about it and remedial action is then set-up for the student.

The above ethical considerations were applied and aligned with the conditions identified in the 2013 South African Protection of Personal Information (POPI) Act (2013). The conditions as listed below were complied with:

Condition 7: Security safeguards

- Security measures on integrity and confidentiality of personal information (19:1,2 and 3)
- Information processed by operator or person under authority (20).
- Security measures regarding information processed by an operator (21:1 and 2).
- Notification of security compromises (22:1, 2,3,4,5 and 6).

The 2013 South African Protection of Personal Information Act (POPI) and the ethical standards as outlined by the American Educational Research Association, approved by the AERA Council in February 2011 (AERA, 2011), were adhered to.

1.8 Limitations and delimitations

The limitations and delimitations of the research study included:

- The study was carried out at only one PHEI.
- The number of participants was limited to 14 in the third-year production class, which could limit the study findings and prevent generalisation beyond these delimitations.
- This is the first study of its kind at the PHEI, and the researcher was limited by her own understanding of the research topic.
- Participants may not be honest about their opinions of the study as the researcher is their facilitator (see section 1.7.4).

1.9 Outline of envisioned chapters

This thesis comprises five chapters as briefly outlined below:

Chapter 1: Orientation to the study

This chapter introduces the reader to the study, provides an overview of the rationale for the study, and reviews the research problem and defining key concepts. Details of the research methodology, research design and ethical considerations practised are also provided.

Chapter 2: Review of relevant literature

A broad range of relevant literature covering key concepts supporting the research questions is documented in this chapter.

Chapter 3: Methodology and methods

This chapter discloses the research paradigm and methodology applied in this study. The participant group is identified. The data-collection tools and data analysis used are also identified. Ensuring the quality of the study is also considered.

Chapter 4: Findings and discussion

The study findings together with discussion of the research procedure is provided.

Chapter 5: Conclusions and possible implications

This chapter summarises the main concepts of the study based on the research questions. Recommendations are made for future research and practice.

1.10 Summary

Chapter 1 provided an insight for the reader in relation to the research that was performed, by introducing the research topic and the research questions used to guide the research within the context of fashion design at a PHEI. The researcher, as a facilitator undertaking the role of a researcher was also addressed (see section 1.7.4). The aim of the research is to explore, through a case-study methodology, how, if at all, cooperative learning can foster creativity within a fashion design context at a PHEI.

CHAPTER 2

REVIEW OF RELEVANT LITERATURE

2.1 Introduction

The purpose of this literature review was to provide an understanding for conducting the research study in terms of exploring the role of cooperative learning in fostering creativity. The first subsection introduces the study, the second outlines the development of cooperative learning and reviews components behind cooperative learning, the third explores student perceptions of cooperative learning environments aimed at fostering creativity, and the fourth subsection describes the possibility of linking cooperative learning and creativity in higher education teaching and learning contexts.

With a paradigm shift from the traditional instructional paradigm to a more learning-centred paradigm, classroom instruction must be advantageous to student learning (McWilliam, 2009:281). This shift therefore requires facilitators to adapt teaching strategies that can contribute to the development of a student – with the expectation that learning is life-long and life-wide (McWilliam, 2009:281). It must be noted that life-long learning is not to embrace or challenge institutional education, but should complement it, in that it can provide students with knowledge and skills required for them to succeed in a rapidly changing world and throughout their lifetime (Sharples, 2000:177-178). A learning environment can be created to include cooperative learning among students as a significant component of learning (Bitzer, 2004:44). The institution itself also becomes a learner – continuously learning how to produce more learning with each graduating class (Barr and Tagg, 1995:14).

Students are also required to fit into the needs of society and the work environment, in order to make themselves flexible to meeting the demands of everyday tasks (Awang and Ramly, 2008:334). Institutions (public and private) therefore could adjust their teaching strategies to accommodate the requirements of industry, by restructuring the curriculum in which students are challenged to work in groups and think creatively through discovering, understanding, analysing and applying knowledge in new situations (Awang and Ramly, 2008:334). For participants and facilitators, creative capacity must be viewed as a valuable attribute for forward-looking, 21st century learners and graduates – assisting them to be ready

to take or consider risks, to confront complex problems, and to come up with creative solutions (Smith, Nerantzi and Middleton, 2014:2). Thus there is a persuasive case that facilitators come up with activities and spaces in which learners face difficult challenges, and where they need to come up with cooperative and creative solutions within environments, providing opportunities to be experimental and to explore those “what if...?” situations (Smith, Nerantzi and Middleton, 2014:2). Societies such as the fashion industry require agile knowledge workers who are fit for the complexities of change.

In addition, the PHEI where the researcher works, regularly communicates with industry personnel and alumni, and receives regular feedback from them that informs teaching and learning at the institution. It therefore was of interest to further explore how, if at all, group members working in a group activity could generate new ideas or products and thus help students develop the skills necessary for being successful in the fashion industry – as per feedback received from industry.

The intention of this study was to explore how, if at all, cooperative learning could be used to foster creativity within a fashion design context at a PHEI. Concepts relating to the study are now explored.

2.2 Cooperative learning

Cooperative learning is established on comprehensive historical research, with new research now focusing on how people learn and on deep learning – providing added insights into its usefulness (Millis, 2010:2). Slavin (1980:319) describes four cooperative learning techniques:

- Teams-Games-Tournament (TGT), which has 4-5 members with the primary function of the team preparing members to do well in a tournament.
- Student Teams-Achievement Divisions (STAD) also use 4-5 members, but replaces tournaments with simple 15-minute quizzes which students take after studying in a team.
- Jigsaw is similar to TGT and STAD, with 4-5 members. Academic material is broken down into sections with all members having sections to complete, they discuss it with other teams, and then return to their team and teach their team members their assigned section. Students are then quizzed on the entire content.

- Small group teaching is an all-embracing classroom organisational plan in which teaching and learning takes place through cooperative group enquiry, discussion and data gathering by students. This technique is in line with Johnson, Johnson and Smith's (1991:5) description of cooperative learning – which is small groups can empower learners to work together to maximise their learning.

Johnson and Johnson (1999:68) also point out that cooperative learning is an adaptable procedure that can be used for many purposes such as teaching specific content (formal cooperative learning groups), and ensuring active thought processing of information during lectures or demonstrations (informal cooperative learning groups). Cooperative learning can also provide long-term support and assistance for academic progress (Johnson and Johnson, 1999:68). The type of cooperative learning (formal or informal) needs to be decided before the project is implemented (Johnson and Johnson, 1999:68). Sohn and Kim (2016:59) state that cooperative learning strategies such as problem-based learning, collaborative learning and team-based learning, are strategies that can be applied in a fashion context. These strategies improve students' critical thinking and decision-making – to provide an overall structure with a diverse group of students (Johnson, Johnson and Smith, 1991:6).

Characteristics of cooperative learning have been identified as well-planned learning strategies that involve forming appropriate, supporting learning groups of interdependent members, who have been assigned a specific learning goal (Kaufman, Sutow and Dunn, 1997:38). The outcome of such learning is that students become actively involved in a project that leads to the development of social skills (Kaufman, Sutow and Dunn, 1997:38). Sohn and Kim (2016:59), after conducting research in fashion, industry and education, agreed that cooperative learning strategies enhance student engagement, understanding of the subject, communication skills, and improve decision-making skills. These are necessary skills in the unpredictable global work environment that students will experience in future careers (Marcketti, 2011:547).

The PHEI in this study has many students employed in fashion retail – and as their facilitators, we are asked to provide students with a reference. Many of the components of cooperative learning are questions that prospective employers ask, such as a student's ability to work in a group, their ability to resolve issues, and their skills in solving problems.

2.3 Creativity

From the literature, a clear definition of the term 'creativity' has been extensively reviewed. As far back as 1961, Rhodes (1961:307) researched numerous definitions of the term and concluded that the definitions are not mutually exclusive, but overlap and intertwine. Once Rhodes (1961:307) analysed these definitions, he identified four strands, which he referred to as the four Ps of creativity: person, process, press/situation, and products. Much later, Alhajri (2013:1) suggested there still does not seem to be a definite agreed upon definition for creativity, and it appears to be a highly subjective experience with no consensus on whether creativity is located in a person, a product or a process (Alhajri, 2013:26).

Amabile (1988:125) refers to authors describing creativity as a constellation of personality and intellectual traits shown by individuals, who when given freedom spend significant time engaged in the creative process. According to Kaufman (2016:5), most creativity researchers have focused on two key determinants that have remained consistent for more than six decades. First, creativity must represent something that is different, new or innovative. Second, being different is not sufficient in itself – because creativity must also be an appropriate solution to the task, in that it must be useful and relevant. In addition, the originality and appropriateness of what is presented as creative must also be of high quality (Sternberg cited by Kaufmann, 2016:6), and can take on any form (Sternberg, 2006:429).

Other researchers have defined creativity according to the process itself, which is “the emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand, and the materials, events, people, or circumstances of his/her life on the other” (Rogers, as cited by Amabile, 1998:126). The product is viewed as creative by people familiar with the field in which it is produced (Amabile, 2012:3). Cropley (1995:11) also indicates that researchers support the view that a thorough knowledge of one's field also promotes one's creativity within that field. Moran (2010:319) indicates that creativity has been a topic of interest for several decades. Moran (2010:319) further indicates that there are several benefits in relation to creativity for educational outcomes such as increasing student engagement and achievement, since students are accessing ideas in many ways – so providing support for metacognition, which helps students become initiating, smart risk-taking, and self-regulating learners. The ability to accentuate the essence in problem-solving has also been recognised as one of the main traits of creative thinking. Many creative thinking

people fail to solve problems or produce creative products, because they lose sight of what is important (Torrance and Safter, 1999:98). Successful creative problem-solving requires that alternatives chosen for action must be elaborated upon and that strategies be developed for their application (Torrance and Safter, 1999:108). Creative individuals are required to improve our communities and address unrelenting problems. Through creativity, potential products can fill economic and industrial needs. Beghetto and Kaufman (2007:73) expand on conceptions of creativity to include the term 'mini-c' creativity, which is defined as "the novel and personally meaningful interpretation of experiences, actions, and events". Novelty and meaningfulness of these interpretations do not need to be original or meaningful to others – but highlight a relationship between learning and creativity (Beghetto and Kaufman, 2007:73). Beghetto and Kaufman (2007:73) highlight cognitive scientists' studies suggesting that information is not merely transmitted from the environment and inertly received without any transformation. People filter and interpret information through the lens of their prevailing conceptions, personal histories, and past experiences (Beghetto and Kaufman, 2007:73).

Moran and John-Steiner (2003:74) see creativity as bringing something new into the realm of social meaning, and view development and creativity as inter-related processes. Beghetto and Kaufman (2007:73) refer to the interpretive and transformative process as 'mini-c'. Cropley (1995:17) mentions that creativity has a social aspect for individuals. A social aspect can be a positive for individuals working in groups – as they have to socialise with each other. Intentionally fostering creativity in participants relies on a plan that will unfold the necessary characteristics for creativity in appropriate learning conditions (Cropley, 1995:1). Over the years, one can see that from various researchers' definitions or explanations of the term creativity, there are varied but similar inferences to the term creativity. For this study, creativity means the processes a group of students follow to produce a unique end product/outcome within the context of fashion, and within the physical environment of the classroom.

2.4 The facilitator's role in learning

Students expect the facilitator to be the source of knowledge and a provider of solutions to activities - with very limited input from them (King, 1993:3).¹ As a production facilitator, I found that students relied on me to prompt them through every step of the process, and did

very little work or no work during their contact time. This resulted in the student not being able to demonstrate a clear understanding of the module requirements and they did not achieve their full potential. I argue that teaching strategies can influence student performance and that learning at the institution where the study was conducted, could be more student-centred to ensure greater student understanding.

Facilitators must add value by developing student competencies and talents and should transform them into more knowledgeable and committed individuals (Johnson, Johnson and Smith, 1991:98). In the facilitator's instructions to the participants, the facilitator must encourage creativity to explore ideas that participants find interesting and relevant for problem-solving, and must participate actively and express themselves freely (Horng, Hong, ChanLin, Chang and Chu, 2005:352). Other tasks that the facilitator must perform, include specifying the objectives for the lessons, clarifying requirements of the brief, defining groups, allocating project time limits, monitoring student progress throughout the process, and providing feedback (Smith, 1996:76-77). Facilitators must constantly review current and relevant teaching methods that create meaningful opportunities for hands-on and minds-on learning collaborations (McWilliam, 2009:290). Johnson, Johnson and Smith (1991:5) and Slavin (1980:319) have outlined the value of cooperative learning and indicate that cooperative learning is an instructional method in which students work together as a team to achieve a creative outcome or product.

The application of student-centred learning approaches such as cooperative learning and problem-based learning (PBL) could enhance student learning through critical thinking and possibly foster creativity by engaging in suitable learning activities (see 1.3) relevant for the fashion industry. For this study, the cooperative learning approach was considered. The choice of research design is built on the philosophical assumptions the researcher brings to the study, the type of research strategies used throughout the research, and the specific methods engaged in conducting these strategies (Creswell, 2009: 3-4) – which are discussed below.

2.5. Linking cooperative learning and creativity in higher education teaching and learning contexts

2.5.1 Implementing cooperative learning to foster creativity

Substantial learning experiences in well-designed institution programmes utilise active forms of learning and provide a structured sequence of activities such as lectures, discussions, small groups and writing that support diverse learning styles and goals (Marcketti, 2011:548). Although Marcketti (2011:548) views the learning experience as a structured sequence of activities, it also allows a large degree of flexibility to accommodate the diverse needs of each level of the sequence, and allows students and facilitators to interact in a creative and supportive environment (Kaufman, Sutow and Dunn, 1997:42). Reid and Petocz (2004:52) add that a learning environment must be advantageous to learning, in order for students to achieve high levels of creative learning, develop an understanding of their way forward, and have the freedom to explore ways to achieve a unique outcome. Therefore, the facilitator must ensure that sufficient time is allocated for students to complete a group task in the classroom – as indicated by Smith (1996:76). It encourages students to gather and combine information and incorporate it with the general skills of enquiry, communication, critical thinking and problem-solving, which are the skills necessary for the unpredictable global work environments that students will experience (Marcketti, 2011:547).

In this study, the third-year production timetable (cycle one and two) was flexible enough to accommodate new learning approaches such as a group activity. Students could use the skills learned in their first and second year to apply in the activity, and manage their work in a cooperative learning environment using these skills – which could possibly lead to a new product as suggested by Smith (1996:76). The Focus on Production module was one of the modules of the fashion design programme that considers the process and the product. Sohn and Kim (2016:60) states that “design as a process is planning to meet a goal and applies to everything intentionally created (product) for a purpose”. Within the context of the PHEI, this statement means that the design drawing/illustration is not the final product, but is part of the process of getting to the final product.

For a project to be cooperative and successful, Johnson and Johnson (1999:70), Kaufman, Sutow and Dunn (1997:38) and Smith, (1996:75), determined six essential elements that could also foster creativity:

- *Positive interdependence*: This is a perception that we are linked to others in a way where we cannot succeed unless they do. The benefit is not for an individual but for all group members. Each student is assigned a role leading to the completion of the project. Rewarding is a means of structuring positive interdependence and this can be in the form of a shared grade (reward interdependence), shared resources (resource interdependence), and or division of labour (task interdependence).
- *Individual accountability*: Each student (group member) has to be responsible for their own learning, even though they help each other, allowing them to become stronger individuals within a group and when independent tasks need to be completed. Individual assessment is conducted and feedback is provided to the group. Through assessment, members and the facilitator can establish if there are individuals requiring assistance or if the individual is being lazy. A facilitator can monitor this by randomly asking a student questions about individual tasks or the group progress.
- *Face-to-face verbal interaction*: Students need to be verbally active in explaining, brainstorming, and encouraging each other, and linking new and previously learned knowledge in an effort to achieve the required project outcomes. Facilitators must observe the silent students who may not be contributing to the learning of others or themselves, and this must be addressed immediately.
- *Social Skills* (teamwork skills): Groups cannot function effectively and efficiently without social skills such as leadership, decision-making, trust-building, communication and conflict resolution. Since many students may never have worked cooperatively, these skills need to be taught and understood before the implementation of a project. Class exercises can be introduced in informal learning lecture time, in which the facilitator can discuss and explain the relevant teamwork skills required for the completion of a group project.
- *Group processing*: Students must periodically assess how well they are progressing as a group and how they could improve to ensure successful completion of the required

task. Decisions can be made on whether to continue with the current technique, or whether to make a change.

- *Appropriate grouping*: The facilitator must ensure that each group contains members with various attributes, in order to strengthen problem-solving and social skills of all group members.

The inclusion of the essential cooperative learning elements together with the stages to achieve creativity allows students to fully review and understand a problem and see problems that are not obvious (Robbins, 2001:132). Wallas (1926:40) describes four stages of thinking that could lead to the development or expression of a new idea:

- *Preparation stage*: The problem is investigated systematically.
- *Incubation stage*: The problem is not consciously thought about.
- *Illumination stage*: The appearance of the “happy idea” together with the psychological events which immediately lead to and accompanied that appearance.
- *Verification stage*: The validity of the idea is tested.

Torrance (1988, as cited in Sternberg, 1988:45) ascertains that many researchers have refined and elaborated Wallas’s stages of thinking and have used these stages as a basis for many of the creative thinking training programmes available today.

Based on Wallas’s (1926:40) stages of thinking, Torrance (1988, as cited in Sternberg, 1988:45), Jordaan and Jordaan (1989:490), and Bergh and Theron (1999:142), indicate that the creative process could progress in five phases. The first phase is the orientation phase, in which the problem must be identified, clarified and defined. The second is the preparation phase, in which all possible information relating to the problem must be collected. Students could try to make sense of the problem and come up with various and differing solutions using trial-and-error. Solutions must be analysed for advantages and disadvantages. The third phase is the incubation phase in which solutions to the problem must be found. The fourth phase is the illumination phase, which must not be viewed as the solution to the problem – but a description of the kind of experience a person went through when a general idea of how the problem can be solved suddenly developed. The fifth phase is the verification phase, in which the solution is verified and identified as the appropriate one for the problem.

Similarly, the approach Schmidt and Moust (2000:23) propose could be incorporated into the phases as described by Torrance (in Sternberg, 1988:45), Jordaan and Jordaan (1989:490) and Bergh and Theron (1999:142). Cooperative learning (formal and informal) could then be used together with the phases to foster as follows:

- Clarify unknown terms and concepts in the problem description (orientation phase).
- Define the problem: list the phenomena to be explained (orientation phase).
- Analyse the problem: “brainstorm”, try to produce as many different explanations for the phenomenon as you can. Use prior knowledge and common sense (preparation phase).
- Criticise the explanations proposed and try to produce a coherent description of the processes that, according to what the person thinks, underlie the phenomena (incubation phase).
- Formulate learning issues for self-directed learning (illumination phase).
- Fill the gaps in knowledge through self-study (illumination phase).
- Share findings with the group and facilitator and try to integrate the knowledge acquired into a comprehensive explanation for the phenomena. Check whether the student knows enough (verification phase).

As previously indicated, a problem that facilitators encounter in the production module at the PHEI, is the difficulty students face in interpreting a technical drawing, image or flat drawing into a final product (fitted garment). Using a learner-centred approach such as cooperative learning, together with the phases of thinking, can be a beneficial activity for learners to think about a problem using elements of thinking and cooperative learning.

With informal learning, short periods can be allocated to discuss the requirements of a group project by providing students with examples – allowing them to be actively involved in thinking about product problems and the processes available to produce a new product (Johnson and Johnson, 1999:68). A mood conducive to learning is set, so helping students to organise in advance their ideas to be used for the completion of an assigned project (Smith, 1996:73). Using examples such as completed garments (product) and technical drawings (2D

form) can enhance the learning in the production module – so inspiring students to be aware of the connection between 2D and 3D forms. Informal learning allows the facilitator and learners to start early and in small sections prevent the risk of the formal learning project failing (Smith, 1996:73). Informal cooperative learning groups can last a few minutes to one class period (Smith, 1996:73). Because students sometimes do not know what the starting point is when faced with a problem and then become frustrated, the creative process of Schmidt and Moust (2000:23) and the phases of Torrance (in Sternberg, 1988:45) and Jordaan and Jordaan (1989:490) can be followed.

Cooperative learning allows group members to come up with more than one solution in the production of a final garment. With formal learning, cooperative learning as a group project can be structured over a few days – allowing students to achieve shared goals and complete specific outcomes for the project (Johnson and Johnson, 1999:68; Smith, 1996:77). The appropriateness of using formal cooperative learning is in line with many of the fashion industry functions such as the role of a buyer, who does not work as an individual but works together with the fashion designer, garment technologist and planner. For students, this means that with formal cooperative learning, students work together to achieve a joint learning goal in temporary groups (Johnson and Johnson, 1999:68). The groundwork for the success of formal learning is completed during the informal learning time.

Learning outcomes include whatever students do as a result of a learning experience, and the assessment is the measure of the learning outcome. Therefore, the assessment should focus on what students have learned, the knowledge and skill levels they have achieved, and their potential for further independent learning (Barr and Tagg, 1995:18). Learning outcomes and assessment measures are clearly defined in the student brief (see Appendix 1). Challenges that facilitators face are in the assessing of contributions made as a group, and as an individual, and the time it takes for facilitators to set up a cooperative learning project (Banning and Gam, 2013:3).

Assessment is in the form of a questionnaire using open-ended questions relevant to the project - such as “what activities were most valuable to their understanding of the project and explain why” (Banning and Gam, 2013: 8). It is also essential that students are given the opportunity to provide feedback (verbal and written) on the group’s achievement (Bitzer, 2004:53). Other methods of assessment are peer assessment, allowing students to assess the

individual contributions of their peers, and self-assessment – which allows the student to assess their own learning according to the outcomes provided (Bitzer, 2004:62-63). The facilitator must provide a format for feedback and assessment (Bitzer, 2004:53).

Students working together in groups can use a cooperative learning strategy to enhance their creative thinking abilities, in an attempt to arrive at new solutions to problems using creative thinking (Lyman, Foyle and Azwell, 1993:89). Treffinger, Young, Selby and Shepardson (2002:21) also indicate that the characteristics of people, the processes used, the context within which they work, institutions and lecturers – all contribute to creative productivity. Figure 1 (below) provides a summary of the elements that Lyman, Foyle and Azwell (1993:89) and Treffinger, Young, Selby and Shepardson (2002:21), suggest in terms of providing for fostering creativity:

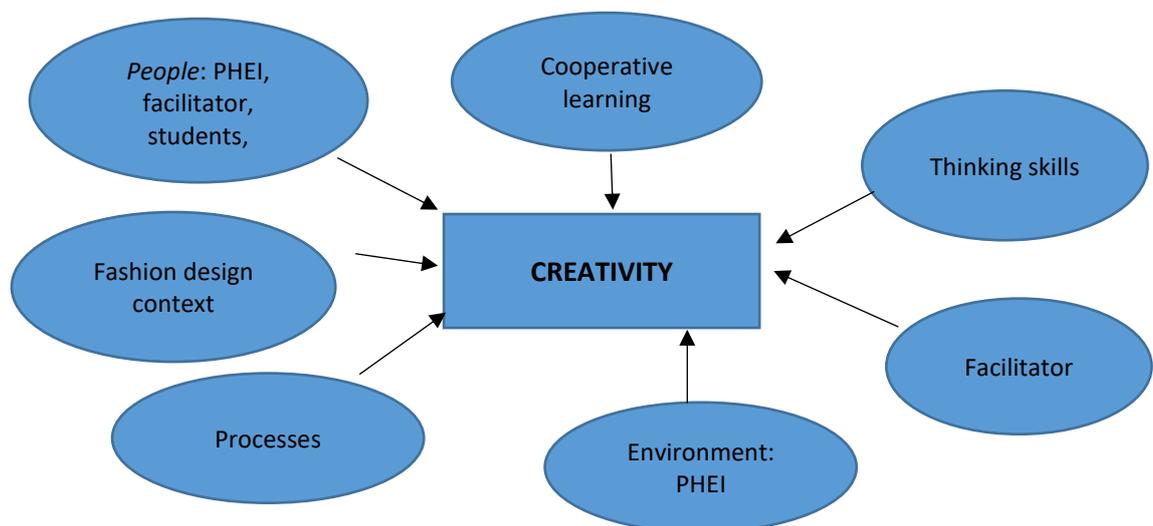


Figure 1: Elements for fostering creativity (adapted from Treffinger, Young, Selby and Shepardson, 2002:21).

From the research provided, the researchers indicate positively that cooperative learning could foster creativity.

2.5.2 Role of the facilitator in fostering creativity through cooperative learning

Facilitators must not provide a final product, giving information for the learners to replicate but rather “meddle”, which allows for the re-positioning of the facilitator and learner as co-creators of their social world – thus adding value to creative capacity building (McWilliam, 2009:287). The facilitator must ensure that a creative learning space is conducive for learners to be able to focus on learning through discussion, enquiry, cooperation and/or practice and

much less on acquisition of knowledge from facilitators (Smith, Nerantzi and Middleton (2014:4). According to McWilliam (2009:287), the meddling facilitator focusses importance on learning for understanding and not learning for content mastery.

Facilitators must also be aware that not all groups are cooperative, in that some learning groups enable student learning and increase the quality of life in the classroom – whereas other learning groups hinder student learning and therefore create disharmony and dissatisfaction (Johnson and Johnson, 1999:68). It is also essential for the facilitator to explain the benefits of cooperative learning groups. These benefits include: working together accomplishes shared goals, seeks outcomes that are beneficial to all, promotes discussions of materials with each other, and helping each other to understand the project and encourage each other to work hard (Johnson and Johnson, 1999:68). Awang and Ramly (2008:334) also refer to the benefits of cooperative learning groups as mentioned by Johnson and Johnson (1999:68) and add that using group learning facilitates the acquisition of knowledge and several attributes such as teamwork, problem-solving, independent responsibility for learning, sharing information, and communication skills.

Facilitators are a source of creative capital when they develop cooperative engagement processes that enhance student learning (McWilliam and Haukka, 2008:4). McWilliam and Haukka (2008:5-6) argue that facilitators must promote skills such as pattern recollection, creation of correlations and mental models, the ability to cross domains, explore alternatives, knowledge of plans for problem-solving, and ease of thought, as these are all indicators of creativity. These skills are a set of learning characteristics or thinking habits (McWilliam and Haukka, 2008:5-6). Helping students to focus more on strategy and less on their self-esteem, is a way to ensure that they become emotionally resilient, positive and employable (McWilliam and Haukka, 2008:19). Facilitators must be flexible in their teaching and allow students the freedom to express their creative ideas, without any repercussions (Alsahou, 2015:166). Facilitators must adopt an attitude of teaching creatively to encourage student creativity, by passing on their enthusiasm, imagination and other talents (Lucas, 2001:39-41). For the facilitator, this can create a learning context for problem-solving and appreciating learner creative contributions that are essential principles of teaching for creativity (Lucas, 2001:39-41). Creativity elements such as the person, process, product and environment must

be considered when applying the cooperative learning elements and thinking stages. Creativity elements analysed by Rhodes (1961:307) can be summarised as follows:

- *Person* covers information of the person's personality, intellect, temperament, physique, traits, habits, attitudes, self-concepts, value systems, defence mechanisms, and behaviour.
- *Process* applies to motivation, perception, learning, thinking and communication.
- *Situation/environment* refers to the relationship between human beings and their environment.
- *Product* is when an idea becomes expressed into a tangible form.

It is equally important for the facilitator to be aware of the elements that can influence cooperative learning negatively. Kurtzberg and Amabile (2001: 287-288) state that facilitators must be aware of the risks of group problem-solving such as group-thinking and generating risky results when there is no vocal opposition in groups to challenge agreed-upon ideas and decisions. Although conflict can be prevented in group work, it could also hinder the group's productivity and creativity and therefore facilitators must monitor group members' conflict and allow members to voice their opinion – which could lead to creative outcomes (Kurtzberg and Amabile, 2001: 291). When students as individuals anticipate conflict, their thought process could become narrow and rigid compared to when they anticipate cooperation outcomes (Kurtzberg and Amabile, 2001: 290). The authors further identify three categories of conflict:

- *Task-based conflict*, which refers to discussions and debates about the work being done.
- *Relationship-based conflict* that refers to the interpersonal interaction among group members.
- *Process-based conflict* that refers to the strategies, plans and division of roles and responsibilities.

Facilitators must therefore constantly review current and relevant teaching methods that create meaningful opportunities for hands-on and minds-on learning collaborations (McWilliam, 2009:290).

2.5.3 How student perception may influence cooperative learning environments aimed at fostering creativity

Before implementing a group project, facilitators also need to understand how students feel about group processes, insecurities and sharing their feelings (Pilling-Cormick, 1997:75). Critical questioning between the facilitator and students can lead students to alter their views about the nature of groups in a self-directed learning context (Pilling-Cormick, 1997:75). Group diversity is seen as achieving high quality outcomes, but there can also be high levels of conflict – resulting in group members each searching for different answers and alternative solutions (Shalley and Gilson, 2004:43-44). Facilitators must therefore make it clear to the group that different answers and solutions can be used at different stages of the creative process – for example at the problem-finding stage and at the product-development stage (Shalley and Gilson, 2004:44). It is natural for humans to want to work with others like themselves, but facilitators must encourage students to work with ‘different others’ or the facilitator must establish diverse groups indicating that the views and inputs of diverse others are sought out (Shalley and Gilson, 2004:43-44). Feedback from the PHEI alumni working in industry has been that they work as a team and also have to work with the production factories that are based locally and internationally. In order for them (the alumni) to perform their task efficiently, they have to understand the various cultures – especially with the production factories that are often based in China. Communication is difficult, and therefore when visiting the factories in China an interpreter has to be used or communication via email has to be in simple English and precise. All elements of a technical drawing (of required garment design) have to be clearly identified (style interpretation) and must be submitted with a specification drawing that is a technical drawing with measurements. It is therefore important for participants to engage with the varied personalities of group members in a professional and ethical manner. The facilitator must be aware that there can be a possible conflict, and the facilitator must be able to effectively deal with this conflict.

2.6. Possibilities for implementing cooperative learning to foster creativity at a Private Higher Education Institution of Fashion

In fashion design education, it is necessary for students to exercise and develop their creative imagination and deep learning regarding the subject they study – which does not entail the memorisation of facts and formulae but in developing all skills required to convert an idea into a product (Reddy, 2014:535).

Based on Baker and Clark (2009:2), cooperative learning that fosters creativity in general (and by extension also in the context of the PHEI where this study was conducted), could be defined and described as learning that takes place in a suitable and stable environment. The formation of small groups (no more than four to five students per group) working together, brainstorming and sharing the workload equally to progress towards an end product according to assessed outcomes, can be beneficial to all group members. Using a defined problem, students could use previously learned knowledge and new knowledge to generate relevant ideas, evaluate these ideas and draw appropriate conclusions by following a process to produce a product of high quality (Cropley, 1995:11). The possible benefits and risks of implementing cooperative learning to foster creativity and the facilitator's role must be discussed, as these are important elements to consider in the success of cooperative learning fostering creativity. Aboukinane (2007:21) cite Torrance and Safter (1999:52), indicating that creative thinking does not occur unless there is acknowledgement of a problem and the liability to deal with it.

2.7. Summary

The literature review provided evidence that cooperative learning has the possibility of fostering creativity if it is guided appropriately through the elements of thinking and cooperative learning for the Focus on Production module. The reported research indicates that cooperative learning (when compared to individualistic learning) enhances learner achievement, promotes self-esteem, and improves interpersonal relations.

CHAPTER 3

METHODOLOGY AND METHODS

3.1 Introduction

This study explored how, if at all, cooperative learning can foster creativity in fashion design. Previously the researcher always used traditional methods for teaching. As part of this study, it was decided to explore and monitor a different strategy of teaching. This chapter reports on a rigorous and systematic approach which was followed to interpret what happened during the study. The first section in this chapter provides a brief introduction on why the study was executed. The second section provides information regarding the selected research paradigm. The third section discusses the selected methodology. The fourth section describes the methods of data collection used. The fifth section describes the data analysis employed. The sixth section explains the selection process for participants. Finally, the seventh section describes the quality criteria used to guide the study.

3.2 Selected research paradigm

This study was conducted using the interpretive paradigm. The interpretive paradigm assists the researcher to explore and build rich understandings of the real-life experiences of educators, students, cultures of classrooms, institutions and the communities in which the researcher directly and indirectly works (Taylor and Medina, 2013:4).

The researcher identified with the interpretive paradigm as pursuing an understanding of how participants learn and work in groups and in determining how, if at all, cooperative learning could foster creativity within a fashion context, is intended. The researcher endeavoured to understand the social and creative experiences provided to and by the participants and the outcomes of these experiences.

This paradigm allows the researcher to explore the research problem from different perspectives, in order to understand an occurrence (Henning, Van Rensburg and Smit, 2004:21). In the interpretive paradigm, the researcher does not stand on the side-lines, but is a participant-observer who engages in the activities and determines the meanings of actions (observations and interpreted social constructions), as they are expressed within the specific

social context (Vosloo, 2014:308). Henning, Van Rensburg and Smit (2004:22) indicate that the researcher studies individual perceptions and experiences using the human mind, and hence it is impossible to completely separate the researcher from what is being investigated. As the facilitator of this study, the researcher had to be open and honest about her position in relation to the participants as a facilitator-researcher.

Henning, Van Rensburg and Smit (2004:22) and Willis, Jost and Nilakanta (2007:6) indicate that the interpretive researcher often uses qualitative means to generate different types of data and data analyses in educational research. Creswell (2009:3) uses the concept of 'research design' to denote qualitative, quantitative and mixed methods that assist researchers to generate different types of data – qualitative data, quantitative data and mixed-method data. Stake (2010:11-15) expresses that "qualitative" means that science relies mainly on human perception and understanding. Creswell (2009:12) provides examples of methodologies suitable for qualitative data collection, such as narrative research, phenomenology, ethnographies, grounded theory studies, and case studies. Willis, Jost and Nilakanta (2007:6) also indicate that the interpretive paradigm can use qualitative data generated by focus groups, interviews and observations – as these methods best support the ways in which humans (and thus also researchers) interpret the world around them.

3.3 Selected methodology

As this study intended to explore the possibility of cooperative learning fostering creativity in the Focus on Production module, a case-study methodology was chosen as the most appropriate research methodology. Furthermore, given the interpretive position assumed in this study and the nature of the research question, a case-study methodology was considered to be the most suitable to employ. The 'case' in this study refers to the 2018 third-year students at a PHEI who worked in a natural setting of the third-year production classroom, within the context of fashion design. Gillham (2000:1) states that a "case" can be an individual, a group, an institution and a large-scale community and refers to these as single cases. Gillham (2000:1) indicates that the word "case" can be challenging to define and attempts to describe it. Gillham (2000:1) describes "case" as a unit of human activity embedded in the real world, or a "case" that can only be studied or a "case" understood in context, or a "case" that exists in the here and now or that merges in with its context – so that precise boundaries are difficult to draw.

Using a single case allowed the researcher to observe and study a phenomenon which has not been applied at the PHEI, and which provided valuable insights into the research question. A “case study” explores the case to answer specific research questions and tries to find a range of different kinds of evidence – evidence that is there within the case setting (Gillham, 2000:1). A case study methodology was considered most suitable as it provided a systematic way in which to collect data, analyse data and report on the results – thus allowing for an in-depth understanding of the research questions. The research design is an exploratory case study to research concepts, people and situations. The study is also descriptive, in order to document and describe what is found and observed during observations and focus-group responses.

According to Ellram (1996:99-100), the choice of a case study lies in the unique strength of its ability to deal with evidence, documents, artefacts, interviews and observations of process in a holistic manner and within a single setting (Ellram, 1996:99-100). The case study has value in advancing essential information in the knowledge domain of the Focus on Production module. Furthermore, Stufflebeam, Madaus and Kellaghan (2000:283), imply that the underlying philosophy of single case study is “not to prove but to improve”.

3.4 Pilot study

A pilot study was conducted before the main study to test whether the data-collection tools are appropriate. The participants were third-year students that also participated in this study. The intention of the pilot study was to identify any misunderstandings, doubts and impractical questions. The participants were asked to comment on the instruments and their comments were considered in refining data-collection tools for this study. As a researcher, the motivation for conducting a pilot study was to execute an effective group and instructional activity for the research. The pilot study was also to familiarise the participants with the activity brief, activity process and terminology used (see appendices 1, 2 and 3). The pilot study was conducted in cycle one of the PHEI academic calendar, and the main research study was conducted in cycle two of the PHEI academic calendar (10–12 April 2018).

3.5 Sample group

The third-year students registered at the PHEI for the level 3 Diploma in the Fashion Design programme in 2018 formed part of the sample group for the study. This sample group started

from a history of shared interactions in relation to the issue under discussion, and has already developed forms of common activities, and fundamental patterns of meaning concerning the group activity. The level 3 Focus on Production module (patterns and garments) was used for this study. The study was undertaken in the third-year production classroom at the PHEI. This classroom is fully equipped with all the requirements for the group task activity.

The researcher grouped the members according to the strengths and weaknesses of each member and confirmed the grouping with other PHEI facilitators who had previously facilitated the participants. The grouping of participants considered that some members are stronger in pattern construction and weaker in garment construction, and vice versa. Another consideration was that there are members that tend to be slackers and by grouping them into a particular group, it assured that they had to contribute to the activity. The objective for grouping students as such, was to allow members to learn from each other by integrating and verbalising each other's opinions. "Students who learn from other students may be less threatened by their lack of knowledge and, therefore more comfortable asking questions from a fellow student rather than a facilitator" (Castle Jr., 2014:16). There were four groups comprising three members and one group comprised two members (the third member fell ill and provided a medical certificate). All participants were older than 18 years and therefore parental consent was not required. An assistant was available to make sure that all required garment construction machinery was continuously in working order in the research environment. As the facilitator and researcher, the researcher's role was to oversee the smooth running of the activity and to be available to participants should any issues arise. A senior facilitator was also available to play a supportive role, and checked in from time to time to make sure that the activity was under control.

The researcher played the role of researcher and observer-as-participant. This meant that the researcher was an observer and interpreter of the study. As a researcher using qualitative data, there needed to be no bias in the descriptions and interpretations of the research. Babbie and Mouton (2001:273) use the term "intersubjectivity" to describe the closeness that the researcher has to get to the participants, in order to generate legitimate and truthful insider descriptions (data), and thus objectivity takes on different meanings such as gaining trust and establishing relationships with participants.

3.6 Selected data collection and analysis

Data were collected and analysed to answer the research questions. Willis, Jost and Nilakanta (2007:6) indicate that the interpretive paradigm uses qualitative data such as focus groups, interviews and observations, as these methods best support the ways in which humans (and thus researchers) interpret the world around them. Qualitative data were collected in the natural setting (the PHEI's production classroom) in which the activity was conducted. This allowed an in-depth exploration and description of selected participant experiences in working within a group, and demonstrating their actions as suggested by Henning, Van Rensburg and Smit (2004:3-5). Qualitative data were collected from the first day of the activity within the classroom environment which the participants were familiar with. Data were collected from the focus group (see appendix 4) and participant observations (see appendix 5). An end product (garment) was assessed as evidence according to a set of criteria (see appendix 6). An assessment of the product formed part of data collection – together with all documentation essential for PHEI requirements. The assessment criteria for the end product was based on the Focus on Production module, as prescribed by the PHEI.

The focus group comprised six participants, one participant from each group; members from each group volunteered to be part of the focus group. Another participant asked if she could join the focus group and this was allowed. There were two members from the same group, as the one member could not be present throughout the focus-group session. A semi-structured format for the focus group was used and it was conducted in the meeting room of the PHEI. The focus group was conducted to elicit specific answers from respondents in order to obtain rich data. Probes were also used to specifically explore participant experiences of cooperative learning and creativity, and to gain more understanding of the questions asked. Open-ended questions for the focus group were used to target the predetermined categories and to elicit specific answers from respondents in order to obtain rich data to be later compared and contrasted. Participants could add to comments made by other participants. Having the final product available during the focus-group interviews gave participants a visual piece of work to connect their responses to a real product. A recorder, tablet and notebook were used to record responses to the questions asked and to facilitate later analysis. Through questioning the data collected, six elements of cooperative learning were used as pre-determined categories – with the four stages of thinking embedded within the elements of cooperative

learning. By using the predetermined categories, the details of the environment were understood and meaning was gained from the data collected. Thereafter, the predetermined codes were re-examined. Armfield (2007:79), citing Lofland and Lofland, (1995), states that using predetermined codes allows for assessing codes and beginning to combine or eliminate codes that do not fit the overall scheme into the focused codes. All data collected were collated to arrive at the best possible responses to the research question(s). A second interview can be conducted to gain clarity for both the researcher and the participants (Kara, 2018:88). According to Kara (2015:88), having artefacts enhances response during the interview. This allowed for an understanding of how the participants really think about issues in a social context. Notes were also taken by the interviewer (researcher) to facilitate analysis. Participants and the researcher were protected from any form of misunderstanding, in that all participants had to sign an informed consent form.

Observation data included observing participant body language, individual members' actions/roles, verbal communication between members and the tone of members' voices. Using observation data on its own is sometimes insufficient to gain a true reflection of the study – but using it together with the focus-group responses support data from different sources (Schmidt, 2014:228). Comparing the observed actions of participants with their viewpoints as revealed through the focus group and written documents (group evaluation forms and individual evaluation forms), the researcher learned a great deal about unnoticed, implied or silent rules or relationships within the research activity. According to Yin (2009: 34) the use of documentation is important for case studies and must be used to support and/or enhance data from other sources.

The directed approach to content analysis was used for the analysis of data. This approach uses the data collected to give a subjective interpretation of the content of text data through the systematic classification process of coding and identifying categories and eventual themes (Hsieh and Shannon, 2005:1277). The directed approach to content analysis allows for initial coding, starting with a theory or relevant research findings to validate or extend conceptually a theoretical framework or theory (Hsieh and Shannon, 2005:1278). The researcher used the six elements of cooperative learning as pre-determined codes. These codes were: positive interdependence, individual accountability, face-to-face interaction, group processing, appropriate grouping, and social skills. Characteristics of each element were provided for

analysis (see table 3). From the raw data collected, the most appropriate category in which the raw data applied was identified. Simon (2011:1), cited Bogdan and Biklen's (2003) definition of qualitative data analysis as "working with data, organising it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important, what is to be learned, and deciding what you will tell others". In case-study research, Yin (2009:25) discusses the need for searching the data for patterns that may explain or identify causal links in the database. Zhang and Wildemuth (2005:1), in a similar manner, indicate that during data analysis, the researcher immerses themselves in the data and allows themes to emerge from the data. Hsieh and Shannon (2005:1278) indicate that research using qualitative content analysis focuses on the characteristics of language as communication – with attention to the content or contextual meaning of the text. This text data might be in verbal, print or electronic form, and might be obtained from narrative responses, open-ended survey questions, interviews, focus groups, observation, or print media such as articles, books or manuals (Hsieh and Shannon, 2005:1278). This makes it possible to highlight qualitative features of the data.

From the literature review, the researcher became aware that creativity requires different elements in order to emerge. For this study, these elements were identified as the person, process, product and environment. The observations and focus-group responses were used to analyse creativity within the activity. The elements of cooperative learning and the stages of thinking during the analysis of creativity were considered. The more alternatives a group produces and considers, the greater the likelihood of problem-solving and creative thinking (Beghetto and Kaufmann, 2007:73).

Research was exploratory in that it considered concepts such as cooperative learning, creativity, facilitator role, people (facilitators and students/participants as individuals working in groups), and the situation that the researcher knows little about. This is a first time study at the PHEI, and an inductive approach was followed. Elo and Kyngas (2008:109) indicate that if there is insufficient available information about the phenomenon, then the inductive approach is recommended. Comparing participants' observed actions with their viewpoints, as revealed through the focus-group interview and written documents (group evaluation forms and individual evaluation forms), the researcher learned much about unnoticed, implied or silent rules or relationships within the research activity. Table 1 (below) links the

research questions to predetermined categories and the content of the categories. Table 2 (also below) links the research questions to the data collection and data analysis.

Table 1: Summary of research questions, categories and content of categories

Research Questions	Category	Content of categories
What learning strategies can foster creativity in the cooperative learning?	Elements of cooperative learning	Positive interdependence Individual accountability Group processing Face-to face verbal interaction Social skills (teamwork skills) Appropriate grouping
	Thinking phases	Preparation phase Incubation phase Illumination phase Verification phase
What learning activities can foster creativity in the cooperative learning?	Group work activity	Participants actively involved in a group activity following the elements of cooperative learning and the 4 phases of thinking
What facilitator roles can foster creativity in the cooperative learning?	Facilitator as researcher Non-participant in the developed activity	Outline requirements of the activity Develop an activity to enhance participant learning, competencies and talents Allow participants to be co-creators of their social world Create a learning space conducive for learning

Table 2: Summary of research questions, data collection and data analysis

Question	Data Collection Method(s)	Data Analysis Method(s)
What learning strategies can foster creativity in the cooperative learning?	Observations Focus-group interview Documentation (activity booklet, individual and group evaluation)	Direct content analysis
What learning activities could foster creativity in the cooperative learning?	Observations Focus-group interview Documentation (activity booklet, individual and group evaluation)	Direct content analysis
What facilitator roles can foster creativity in the cooperative learning?	Observations Focus-group interview Documentation (activity booklet, individual and group evaluation)	Direct content analysis

3.7 Quality indicators

This study was guided by the quality criteria suggested by Lincoln and Guba (1985) and described by Flick (2009:392) and Vosloo (2014:330) – so that research trustworthiness can be established.

3.7.1 Credibility

The researcher had to be confident in the truth of the research findings. Participants with varied experiences within the context of fashion that can provide an insight to the research questions from varied aspects were selected. Appropriate data collection and analysis methods were selected. A thick description of the study was given by clarifying background meanings specific to the cultural group participating in the study and in-depth details about the participants, processes and activities were provided. Such details offered a multifaceted and increased description of the study. Using direct content analysis helped the researcher to maintain the accuracy of the information, which consequently minimised personal bias. The same questions were asked of members of the focus-group interview without any interference from the researcher, in order to eliminate personal bias. The researcher's colleagues at the PHEI were asked to check the questions asked in respect of the focus group. The researcher included member checking in the findings – that is feedback on the data, interpretations and conclusions from the participants themselves was obtained. This meant that the researcher engaged thoroughly with the data (recordings, notes and transcripts) to determine a link between the data and interpretations made.

3.7.2 Dependability

The researcher demonstrated consistency throughout the process of inquiry by ensuring that it followed a logical sequence, and that the inquiry was traceable and clearly documented by giving a detailed account of the research process. Dependability will allow other researchers to repeat the study so that their findings can be similar to the current research study based on the process followed.

3.7.3 Transferability

As a researcher using qualitative data collection, analysis and interpretation, the researcher demonstrated that the research findings can be applied to other contexts such as within the first year and second year levels of the Focus in Production module – as this module must be

completed by all students at the PHEI. Transferability was enhanced by detailing the research methods, contexts and underlying assumptions of this research study. Since this study adopts a single case-study methodology, the interpretation of results from this study's context can be applied to other settings and contexts.

3.7.4 Confirmability

The study findings are based on participant responses and any potential bias or personal motivations of the researcher were consciously avoided. Personal bias must not distort the interpretation of what the participants say, just to fit a certain narrative. To establish conformity an audit trail was established, highlighting every step of the data analysis that was made in order to provide a rationale for the decisions made. All collected data were well organised, safely stored and will be made available to relevant stakeholders should the findings be challenged.

3.7.5 Self-reflexivity

In order to work ethically in uncertain contexts and as a researcher, the practical reflexive skills as a guide, as suggested by Cruz, Gillingham and Melendez (2007:6-7) were used:

- being critically self-aware in how to understand and engage with social problems;
- realising that assumptions about social problems and the people who experience these problems have ethical and practical consequences; and
- questioning the researcher's personal practice, knowledge and assumptions.

Self-reflexivity is considered to be honesty and integrity with one's self, research and audience (Tracy, 2010:842). The researcher was sufficiently self-aware and self-exposed for the reader to make judgements about the researcher's point of view. The researcher needed to self-examine herself by assessing her own biases and motivations and by asking whether she was well suited to examine the research topic. Any preconceptions, such as previous personal and professional experiences, pre-study beliefs about how things are and what is to be investigated, motivation and qualifications for exploration of the field, and perspectives and theoretical foundations related to education and interests – must be identified (Malterud, 2001:483-484). Self-reflexivity moved from early stages of the research design through negotiating access and trust, data analysis and presentation, as suggested by Tracy

(2010:842). This allowed the researcher to examine her impact on the scene and to take note of student reactions to her presence. The researcher interrogated her own preferences and opinions and asked for participant feedback. To be reflexive allowed for the monitoring of the above and enhanced the accuracy of the research and the credibility of findings, by accounting for researcher values, beliefs, knowledge and bias – thus gaining plausibility by securing research trustworthiness, as suggested by Berger (2013:221). Being transparent means being honest about the research process, by disclosing the study's challenges and unexpected developments and exposures of the ways research applications transformed over time (Tracy, 2010:842). Therefore, the researcher's position as a facilitator and researcher took on different stances from the beginning until the end of the study. For example, at the beginning of the study the researcher was the facilitator giving explanations to the requirements of the activity. During the activity, the researcher was the researcher monitoring the activity – an observer observing student behaviour, providing and receiving feedback. During the activity, the researcher was also a facilitator answering activity questions in order to clarify requirements of the activity to participants – and then as a researcher interpreting data and finalising the study.

A journal was kept documenting what the researcher observed, entered preconceptions, negotiations with participants, interactions with participants and addressed issues that arose during the activity. Journaling will help circumvent any form of bias in the research – that is, inaccurate recall. The researcher handled idle or weak students by closely monitoring them. The activity required participants to each have a different coloured pen to identify their input into the activity. The researcher initially planned to only have an individual evaluation form – but decided to include a group evaluation form to compare the responses participants made.

The researcher used the above criteria to guide the research study – to ensure authenticity and trustworthiness of the research.

3.8 Summary

This chapter outlined the specific processes that the researcher used. A case-study methodology was chosen, as a means of exploring, describing and understanding through the activity task, observations, focus-group interviews, evaluations, and assessment criteria within the learning environment.

CHAPTER 4

FINDINGS AND DISCUSSION

4.1 Introduction

Chapter one presented a background to the research study and indicated the reason for the study. The second chapter listed relevant concepts, possibilities of linking cooperative learning and creativity in a higher education teaching and learning contexts, and the possibility of implementing cooperative learning at a PHEI. In chapter three, the methodology and methods used for the research study were reviewed. The fourth chapter will provide a detailed descriptive overview of the researcher's attempt at promoting cooperative learning to foster creativity within a fashion context.

The findings and discussions of the data collected, analysed and interpreted for this study, have reference to the literature review. The findings of the activity are detailed systematically in an attempt to use cooperative learning to foster creativity. This is based on the activity developed to provide answers to the research questions – which are of an exploratory nature. The main research question was:

How, if at all, can cooperative learning foster creativity within a fashion design context at a private higher education institution (PHEI)?

The sub-questions were:

1. What learning strategies can foster creativity in the cooperative learning?
2. What learning activities could foster creativity in the cooperative learning?
3. What facilitator roles can foster creativity in the cooperative learning?

Concepts of the sub-questions were discussed in Chapter one. As a facilitator, the researcher previously mainly used traditional methods and activities as part of teaching – including lectures, demonstrations and individual practical assignments. The researcher's function as a facilitator was not being completely fulfilled, and therefore it was asked how the strategies and plans could be changed to include activities that would motivate the researcher's students to become stakeholders in their own learning. Traditional learning activities were

not discarded - but to be a more effective facilitator, as a teaching plan, the researcher incorporated instructional and learning-centred methods to ensure that no student would feel isolated. In line with the industry feedback received, the researcher found it necessary to adapt her teaching methods, in line with current industry requirements. At the PHEI where the researcher is employed, her students see her as the provider of solutions to activities. They then passively followed instructions – asking very few or no questions. One way of alleviating this situation was to become less a source of knowledge that freely provides information to students, and to become more of a resource as the facilitator of student learning – guiding them through each expected activity. The researcher applied this strategy as students have different learning styles, and as a facilitator she could vary her teaching styles to ensure that she reached out to all the students' abilities.

This, in the researcher's own view of teaching and learning, sparked an interest to develop an activity that used cooperative learning to explore if such an activity could foster creativity (one of the expected graduate attributes emphasised in industry feedback). The researcher used the third-year Focus on Production module to develop an activity, in order to use cooperative learning based on creative problem-solving processes to foster creativity in a teaching and learning environment. The literature reported in the second chapter showed that cooperative learning could be used to develop the creative ability of students through a cooperative learning experience. The type of research methodology undertaken to explore the research questions, was a case study. Data were collected by the researcher and the focus-group interview conducted by the researcher and were also transcribed using Microsoft Word. The results were taken from the observations (results of the observations are provided in section 4.2) of five groups with three members and one group of two members, the focus group (results summarised in table 3) comprising six participants, and documentation of the activity and end product. Qualitative presentation of the results is provided. These data were studied and analysed numerous times to use the predetermined categories to answer the research questions.

4.2 Observations

The purpose of participation-observation was to identify patterns of classroom use according to the six elements of cooperative learning: positive independence, individual accountability, group processing, appropriate grouping, social skills, and face-to-face interaction. These six

elements were also used as predetermined categories for analysis. In order to systematically observe participant behaviour in the group activity and to guide the observation, the validated Cooperative Learning Observation Protocol (CLOP) of Kern, Moore and Akillioglu (2007:1-6), was adapted for evaluating the elements of cooperative learning (see appendix 5). Observations were made by observing the learners engaging in the learning activity. Participant observation is a process through which the researcher creates an understanding, and generates knowledge by watching, interacting, asking questions, collecting documents, making audio or video recordings, and reflecting after the activity is complete (Tracy, 2013:65). This allowed the researcher to openly observe the activity environment and to record all the details within it (Armfield, 2007: 71). The acronym PIGS-F was used for the purpose of the study:

- P = positive independence
- I = individual accountability
- G = group processing
- S = social skills
- F = face-to-face interaction

There are however disadvantages to observations as students could change their behaviour if they know they are being observed. It was noted that by walking around in the participants' learning environment, the participants considered the researcher to be a supporter in their learning activity, and began to feel at ease.

The data collected allowed the researcher to obtain a range of information regarding the research questions. Using qualitative data allowed the researcher as the observer/researcher to give an in-depth description and analysis of cooperative learning and creativity, as expressed in spontaneous exploratory behaviour in a typical classroom setting – as suggested by Treffinger, Young, Selby and Shepardson (2002:24).

Observation data included observing participant body language, individual members' actions and roles within the group, verbal communication between members, and the tone of members' voices. Observations of the group activity can be summarised as follows:

Positive interdependence: The body language between members was observed to see if there was a positive or negative interaction between group members. As the researcher walked around the classroom she listened to the tone of voice used by members with each other. The researcher observed that group members were constantly communicating with each other, brainstorming ideas, and re-planning elements of the task that were not working for them. Each group decided among themselves what their role in the activity would be. The researcher noted that participants had an increased willingness to learn and to put effort into solving the problem collectively.

Individual accountability: Having assigned roles, members as individuals concentrated on their part of the activity, and if they encountered an issue they consulted with each other and further discussions were held regarding the matter. By walking around and asking questions, the researcher assisted the participants to re-think parts of their activity.

Face-to-face interaction: Groups were each assigned a working space, and machinery to complete the activity. Students used this space to sit down and to verbally communicate with each other. The researcher noticed that all members were giving their input on the activity. Participants that are normally passive and quiet in class also contributed to idea generation and brainstorming. Participants were constantly encouraging each other and assisted each other to achieve the required outcomes.

Group processing: The activity was structured such that participants had to stop and discuss their current progress, re-plan, and also discuss elements of the next phase of the activity. The groups constantly referred to the activity booklet (see appendices one, two, three and seven) to refer to the activity requirements and phases of thinking.

Appropriate grouping: Members were grouped according to the strengths and weaknesses of each member and the researcher confirmed the grouping with other PHEI facilitators who currently facilitate the participants and facilitators who have previously facilitated the participants. This proved successful, as each member supported each other. The researcher observed that the participants who were quick to understand the activity explained it to their group members.

Social skills: A pilot study conducted in cycle one helped the participants to understand the requirements of the activity and the process of the activity, and to become familiar with their

group members. The groups were the same for the final activity and trust was already built between participants. The researcher observed that participants who, as individuals, did not get along with each other – communicated with each other professionally within the group.

The researcher observed that the participants developed a sense of safety and trust in the classroom in terms of executing the activity. No conflict between participants was noticed. The results from the observations led the researcher to conclude that the cooperative learning strategies and stages of thinking used in the study yielded positive results in terms of participant motivation to learn, better understanding of group work, and improved participant behaviour in the given context. The cooperative learning strategies and stages of thinking fostered the thinking skills and cooperative learning skills that the participants need in future. The researcher considered that the product that had to be constructed, had to be completed within a specific period.

4.3 Focus group

The focus-group interview was conducted on 13 April 2018. The researcher began transcribing the interview on 15 April 2018. The interviewees had to often be probed to get responses from them pertaining to the focus-group questions. The interview was transcribed and the researcher had to continuously go back and forth to ensure that what was said was actually documented. All responses were verbatim and accurately transcribed. Black was used for the question, red was for the interviewees' responses and blue was for the researcher affirming interviewee responses or possible probe questions. Nodding of heads was noted. Interviewees were given the opportunity to read through the transcript to acknowledge or refute what had been said. The interview transcript was read frequently. The recorded interview was also used, while re-reading the transcription.

From the responses made during the focus-group interview, it emerged that group four had experienced challenges that had gone unnoticed by the researcher and the other groups. The interviewer and other group members were all under the impression that group four were working well as a team. R20 (in group 4) used the words "silent conflict" – which she described as doing the work knowing that her team member R19 was undertaking the activity for her own advantage and was not totally communicating her intentions to the remaining member. Respondent 20 felt left out of the task and decided not to question the intentions of her team

member. R20 decided to accept what R19 had changed and did not argue about the changes – as long as the activity was completed according to the instructions provided. The researcher allowed students to bring in their own fabric for the specified activity. This decision was made in order to cut down on the costs of the activity. R19 brought in her own fabric and made changes to the design to suit her needs, and did not consider the ideas initially discussed with both team members.

Responses from the focus group were:

“I learned with this exercise that I can work in a group as I was always reluctant to work in a group and preferred to [work] as an individual”.

“I felt that I managed to work well with my group and asked fewer questions from you (facilitator)”.

“Everybody took responsibility for their part of the activity and [being] accountable to the group”.

“The work pressure was divided and this motivated participants to push themselves to their full potential”.

“We communicated constantly with our members and if we were unsure of something we asked you (the facilitator) or another group”.

The general impression obtained (from observations and focus-group responses) from the cooperative learning activity was that participants shared information, participated in their own learning, listened attentively to each other, and took turns to speak and supported each other’s learning. Each individual member had to perform well in order for the whole group to do well, and thus cooperative learning maximised interactions in the groups and created an atmosphere of cooperation, interdependence, accountability and respect for other learners. The participants indicated that cooperative learning fostered creativity – especially group work. Each method allowed specific forms of information to emerge from the participants, thus providing the knowledge required to interpret and convey the experiences of the participants – as well as a holistic sense of the person, process, product and situation/environment. Table 3 (below) summarises the focus-group findings according to the six elements of cooperative learning:

Table 3: Interviewer's summary of focus group session

Categories based on cooperative learning elements (PIGS-F)	Characteristics	Evidence from focus group
(P) Positive Interdependence - Relationships - Contribution of group members	Dynamics of the relationships of members in accomplishing goals	Members decided together the role of each member. Four of the five groups acknowledged they worked together to accomplish the end product. Group four experienced confusion as the one member changed elements of the activity, without informing others.
	group acknowledgement	The researcher assigned members to each group. Not all members commented if they were in favour of this, but they did acknowledge each other.
	engagement with activity goals	All groups were fully engaged in the activity.
	objectives of the activity and process	The objectives of the activity were accomplished by all groups, as evidenced in the activity booklet and end product.
	cohesiveness among members in accomplishing the activity	Four of the five groups accomplished the activity with constant discussions. Group four did not have many discussions, but managed to complete the activity, and hence a lack of cohesiveness.
(I) Individual Accountability - Individual participation - Performance dependant on all group members	individual participation by members	Group members decided what their strong points were, and completed the activity accordingly.
	group members' expectations for individual participation	Members expected individuals to complete allocated parts of the task to the best of their ability and according to the activity requirements. Four groups worked well together, while group five's members were not working well with each other.
(G) Group Processing - Functioning - Clear goals, processing events	individuals function as a cohesive group	Four of the five groups showed cohesiveness, while group five members were not working well together, and thus seemed to lack cohesiveness.
	the group reflects on the goals of the activity	Four of the five groups reflected on the goal of the activity, while group five members did not sufficiently do so.
	the group reflects on their process	Four of the five groups reflected on their process, while group five members did not reflect sufficiently on their process.
(S) Social Skills - Communication - Clarification, paraphrasing, praising	eye contact during communication	Four of the five groups were making eye contact with members during communication, while group four lacked communication.
	respecting ideas of members	Four of the five groups showed respect for the ideas of members. A member of group four did not communicate the changes she made independently of her group member.
	group engagement in forming, functioning and fermenting about the activity	Four of the five groups engaged in forming, functioning and fermenting. Although there was some "silent conflict" between group four members, they individually completed tasks required, but with very little group engagement. It was implied by the group four interviewee that her member wanted full control of the activity.
(F) Face-to-Face Interaction - Encouragement - Facilitating communication	all members' ideas were heard and valued	Four of the five groups valued member contributions. A group four interviewee felt that her voice was not heard and decided to prevent any conflict by maintaining a 'let us just do the activity and get it done with' stance.
	all members actively contribute to the designing and processing of the activity	Four of the five groups showed active member participation. Group four started off with ideas and planning for the activity, but during the activity a member decided to make changes without informing her member.

(Structure adapted from Kern, Moore and Akillioglu, 2007:1-6)

4.4 Assessment criteria

The end product (garment) was assessed according to the PHEI criteria and moderated by a facilitator with expertise on the Focus on Production module. This forms part of the PHEI requirements, but was not included in this research study. This information was included, in order for the reader to get an idea of the assessment criteria of the PHEI. Three examples of the PHEI learning outcomes are provided that are in-line with the essential elements and phases mentioned above. First, the student needs to demonstrate the exploration of the potential of a range of materials, processes, tools and equipment. Second, the student has to produce a unique end product or prototype using previously unused knowledge, skills and processes. Third, the student must apply the principles of craftsmanship in terms of excellence and adaptability. These criteria were slightly adapted in line with for the research study – using cooperative learning while fostering creativity. A checklist with a tick box was handed out to PHEI students for them to complete and submit with their final garment/product (see appendix 6). For the purpose of a group project, this checklist was adapted and used for the facilitator and group or individual group members as formal assessment during the process of the activity - allowing students to check their progress and make changes if necessary. This also helped identify those students who need further assistance or those students who are not contributing to the successful achievement of the project. The checklist is then also an opportunity for the facilitator to provide students with formative feedback, and for students to provide each other with feedback (Kaufman, Sutow and Dunn, 1997:50). Groups were awarded marks for PHEI requirements as listed below:

Group one = 69% (merit pass)

Group two = 70% (merit pass)

Group three = 73% (merit pass)

Group four = 67% (merit pass)

Group five = 71% (merit pass).

4.5 Creativity links to cooperative learning

To achieve the benefits of cooperative learning, the activity was developed in a way that required the participants to work at a creative level, ensuring that creative thinking was linked

to the process of the activity and not just the end product. Summed up creativity links made from observations and/or focus-group responses are:

Person: The person was the individual participant that took on the responsibility within a group to complete an assigned task for the activity. The researcher grouped the participants but the participants took on the responsibility of assigning roles. High and low achieving students did not compete in getting the work done – but supported each other in their assigned roles. Some participants also rotated roles. All participants were noted to be committed to perform the activity. Participants were improving on their openness throughout the activity, as they were discussing more issues amongst themselves. High achieving participants were willing to assist their weak group members to understand the elements of the activity. As the activity progressed, the researcher noticed that the participants were becoming more group-directed and required less direction. The researcher observed the confidence that participants gained while they were generating their ideas during the brainstorming session, as well as during the discussions on their preferred design alternatives to be included in the final technical drawing. From the focus-group responses, one participant was not positively encouraged by her group member; the group member provided initial ideas and during the process made changes without informing her. Responses from the focus group validated or refuted the researcher's observations.

Participants responded as follows:

"I have learned a lot about myself as well as my members by being fair and compassionate and not thinking that my method is the only right method."

"It taught me not to depend on myself but to trust my members' opinions."

"Communication in our group (group 4) was strained as my member wanted what she wanted and had very little communication with me – but rather asked members from other groups."

Process: The process was the action taken by participants to produce an end product. The researcher carefully developed the action plan, as the facilitator/researcher. The plan encompassed all components relevant for individual participants to engage within a group to achieve a creative product. The activity process was broken down into smaller activities in

order for them to complete the activity. The researcher observed that the participants constantly engaged in discussions on all steps of the process. The participants constantly interacted with each other - re-affirming their choices selected in completing sections of the activity. All steps in the process were carefully thought through, as evidenced in the groups' activity booklet. Responses from the focus group validated or refuted the researcher's observations.

Participants responded as follows:

"The thinking questions really helped, because normally you would sit for half an hour just deciding what must be done first – so the questions were a process for us to use to finish our garment."

"The activity diagram made us think about the problem of interpreting the technical drawing, think what could be the cause of the problem, and then follow a process to complete the garment."

"If it was not for the steps of thinking and the activity process, I would be all over like, what am I going to start off with and what techniques am I going to use? So, by following the activity process together with questioning ourselves using the provided thinking questions, our group could follow the sequence to getting to the end product."

Situation/environment: The third-year production room was conducive to performing the activity. The room was equipped with the relevant machinery required to construct a garment. This room provided a natural setting for the participants to complete the activity within the context of fashion. The researcher observed that the participants communicated with each other in determining the correct machine required for a specific garment construction method. In doing so, the participants became self-aware and interacted socially as they worked in groups. I noted that the machine technician constantly checked the machinery – making sure that it was in running order.

Product: The product was developed from the participants' final technical drawing interpretation. This means the participants transformed generated ideas into a final product. The researcher, as production facilitator, evaluated the existence of creativity within the final product. The creativity of the final product was based on the researcher's observations, focus-

group responses, activity booklet evidence, and the relevance of the product within the context of fashion. Focus group responded as follows:

“The end product was the jumpsuit and we had to think up ideas to make it different from the technical drawing provided.”

“The processes can also be creative, as we had to think of every step in order to achieve the product.”

The impression obtained from the cooperative learning activity, was that participants shared information, participated in their own learning, listened attentively to each other, took turns to speak, and supported each other’s learning. Each individual member had to perform well in order for the whole group to do well, and thus cooperative learning maximised interactions in the groups and created an atmosphere of cooperation, interdependence, accountability, and respect for other learners.

Overall, from the observations and the focus group, creativity elements were identified such as problem awareness, ability to produce and consider many alternatives, ability to elaborate, flexibility, ability to put new ideas into context, ability to engage with others, and ability to work in a group.

These results show that student creativity dimensions have been nurtured and enhanced as a result of the problem-solving process involved in the cooperative learning activity. These results positively indicated that group work can be considered to be an effective approach for exchanging ideas and negotiating the usefulness of these ideas – which in turn facilitated the collective interactions among participants and manifested more creative ideas and solutions.

4.6 Summary

The activity offered the participants the opportunity to experience a simulated work scenario requiring them to make decisions and explore methods (new and old) toward a solution. It also required them to learn how to work in a team and to reflect on individual and group members’ roles in a process leading to the creation of ideal solutions and meeting the activity outcomes. For the developed group activity, the intention was for the students to follow a process to achieve an end product that was for research purposes – also for assessment for PHEI requirements, data collection, and data analysed. Gillham (2000:1) noted that evidence

must be drawn out of the setting and assembled to get the best possible answers to the research questions.

CHAPTER 5

CONCLUSIONS AND POSSIBLE IMPLICATIONS

5.1 Introduction

In this chapter the results of the research are aligned to the research questions. Limitations of the study and a conclusion are also discussed and presented.

5.2. Conclusions

This study examined the strategies, activities and the facilitator's role in fostering creativity. The findings are organised in association with the three research sub-questions posed at the beginning of the study and are discussed in light of the literature, where appropriate.

5.2.1 What learning strategies can best foster creativity in the cooperative learning?

From the literature review, it was decided to implement the learning strategies of cooperative learning (Johnson and Johnson, 1999:70; Kaufman, Sutow and Dunn, 1997:38; Smith, 1996:75) (see 2.5.1 and appendix 5). The stages of thinking by Wallas (1926:40) (see 2.5.1 and appendix 7) were also included for the activity, which ensured that the participants were equipped with the skills to complete the activity. The participants experienced a group activity within the Focus on Production module for the first time, and the activity (see appendix 2) was structured in a manner that required creative thinking following the four stages of thinking embedded in the six elements of cooperative learning. During observations and the focus-group session, I noted the creativity element of person, process, product and environment. Once the elements of the strategies were explained and discussed ('question and answer session') the participants were ready to cooperate with each other in a group and to combine the creative thinking skills and cooperative learning elements to execute the activity to produce an end product (garment). Cooperative learning was used as a tool to build comprehensive space in the production classroom to foster healthy interactions and participant development. The researcher also used cooperative group work as a strategy to foster creativity – to assist students to draw on each other's strengths. The value of cooperation was in the connections participants made to generate more ideas, and the substantial opportunity it offered them to take on leadership roles within the activity and to be self-directed. This allowed them to be creative and to think about the activity from a

different angle – instead of doing activities without proper planning. Although this activity was conducted for the first time in the Focus on Production module, the results indicated that the implementation yielded positive results.

5.2.2 What learning activities could foster creativity in the cooperative learning?

A group activity was planned based on the Focus on Production module, in order for the participants to use both creative thinking skills and cooperative learning skills to execute the activity. The researcher allowed the participants to explore, experience and make connections in this activity. The researcher, as the facilitator, also learned that letting go as a facilitator allowed participants the opportunity to open up to new experiences. The use of the phases of thinking was new to the groups and this encouraged them to engage with each other to think about the problem and to come up with the best solutions. These phases encouraged participants to actively participate as a group and to communicate their opinions to each other. The opportunity to work in groups, to communicate with each other, to brainstorm as a group, and to solve problems – showed that participants were eager to provide an end product successfully. Working in a group allowed the participants to be aware of the problem and then to work according to the processes that led up to a final product (garment). Brainstorming new ideas allowed them to come up with new ideas for the problem. Engaging in thinking as a group and working cooperatively, confirms that by the researcher informing the participants about the concepts of cooperative learning and the importance of it in industry and in class, increased their ability to use these strategies to foster creativity. Lyman, Foyle and Azwell (1993:89) state that cooperative learning enhances creativity. Students in groups, working together, used the elements of cooperative learning to enhance their creative thinking abilities in an attempt to arrive at new solutions to problems. The learning activity developed allowed the participants to use Wallas' (1926:40) stages of thinking – together with the six essential elements of cooperative learning of Johnson and Johnson (1999:70), Kaufman, Sutow and Dunn (1997:38) and Smith (1996:75) – to develop new ideas/solutions to the initial problem. The inclusion of the essential cooperative learning elements, together with the stages of thinking, allowed the participants to fully review their opinions, understand the activity problem by seeing problems that were not clearly obvious and this proved to enhance their performance.

5.2.3 What facilitator roles can best foster creativity in the cooperative learning?

Introducing cooperative learning proved to be a challenging task for the researcher and for the participants. The researcher was tasked with implementing, facilitating and observing the interventions. Given that she has never been trained to use cooperative learning, and given that the participants had never used cooperative learning and the stages of thinking before, the task was very challenging. As the facilitator, the researcher therefore combined traditional learning strategies and learner-centred learning activities to enhance the fostering of creativity through cooperative learning. The PHEI allowed the researcher to conduct the study – therefore giving her the flexibility within the Focus on Production module to encourage participant autonomy. From observations and focus-group responses, this clarifies an interrelationship between facilitator and participants. As a facilitator, the researcher diversified her teaching strategy by linking formal and informal production learning, and created a friendly and enjoyable atmosphere within the classroom. This was clarified from focus-group responses. Judgement of participant ideas was delayed until they had thoroughly worked and clearly formulated their new ideas. The researcher encouraged participants to evaluate their own work according to a set of quality criteria. The brief was comprehensively discussed with the participants before the activity began. The researcher was available throughout the study to ensure that participants were performing the activity and to answer any uncertain activity requirements. She ensured that a creative learning space was conducive for learners to be able to focus on learning through discussion, enquiry, cooperation and/or practice and less on acquisition of knowledge from her. The researcher conducted participant observations and focus-group interviews, which gave insight into what worked or did not work in the activity. The elements of cooperative learning used for the observations and which were further elaborated on in the questions for the focus-group session, were a useful tool to engage student cooperation and the effectiveness of the six elements for fostering creativity.

The findings indicate that creativity elements are exhibited in the observations and the focus-group responses. These findings are also evidenced in the group activity booklet.

5.3 Implications

As a first-time researcher, the study challenging and I found myself constantly asking “What am I doing, is this the correct method of doing research, what do the authors of research

papers mean?” The researcher overcame this by speaking to work colleagues and her supervisor.

5.3.1 Implications for future research

The sample of the study was small and does not represent the PHEI population in general. The researcher was careful in selecting members for each group, and this was done by combining strong and weak (see section 3.5) students into one group. It is recommended that the study be repeated with similar groups of students – including the second year Focus on Production module at the particular institution. Further research can be conducted on the question of how, if at all, cooperative learning can foster creativity within a fashion design context – as there is very little literature on this topic within a fashion design context.

5.3.2 Implications for practice

It is recommended that colleagues pursue a cooperative learning activity within their teaching modules, as this could help develop student learning and skills. This can produce students prepared for the fashion industry. The findings of this study can help work colleagues at the PHEI to develop knowledge, skills and abilities in accordance with current work for industry and life requirements. The facilitator must consider their role as a researcher and facilitator, and the PHEI policies.

Using a case study provided in-depth understanding of data collection, and analysis of cooperative learning. This study demonstrated to the researcher that she needs to constantly find new ways to improve her teaching skills and to transfer these skills to her students. The researcher plans on continuing group activities as she noticed the positive impact it had on participants. From conducting the group task and derived from the opinions of participants, work colleagues and other stakeholders (fashion industry), the following decisions emerged:

- To continue conducting group activities in the third year Focus on Production module.
- Introduce group activities in the first and second year levels to develop group work skills.

Although from personal experience of conducting the study the researcher’s time was limited, she learned a lot from the experience and is open to exploring the topic further. This will add value to the researcher, her students, the PHEI, and indirectly to the fashion industry.

5.4 Conclusion

The focus of this study (how, if at all, can cooperative learning foster creativity within a fashion design context at a PHEI?) grew out of the opportunity to complete a Master's in Philosophy (Higher Education) degree. Developing an activity for the third-year students within the Focus on Production module helped them to develop social skills, teamwork and helped them gain experience required for the industry as well as a qualification that can possibly lead them to successfully gaining employment in the fashion industry. It is acknowledged by the PHEI and fashion industry personnel that creative abilities are important for overall individual success, business success and competitive advantage. There was sufficient literature on cooperative learning and creativity, but only limited literature relating these two concepts to the fashion industry. The researcher attempted to combine these two concepts and adapted them for her research. From the study findings it can be said that the activity using cooperative learning can lead to fostering creativity. Aboukinane (2007:21, citing Torrance and Safter, 1999:52), indicates that creative thinking does not occur unless there is acknowledgement of a problem and the liability to deal with it. The researcher is optimistic about the beneficial outcomes of cooperative learning and learning-centred learning approaches on participant creativity. Cooperative learning provides a space for generating and refining participant thoughts with their members, in order to draw one agreed-upon conclusion.

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Appendix 1



ELIZABETH
GALLOWAY
— ACADEMY OF —
FASHION
STELLENBOSCH

Activity Brief and Process

Course: Technology 111

Module: Focus on Production 111

Learning Unit: Focus on Production – Specialised Technique (Group Activity for cooperative learning and creativity)

Learning Unit Number: 320.1

Facilitator: Monique Rolando

This is an activity that will direct and develop new skills and knowledge in areas of Pattern and Garment Technology as well as research. It provides a combination of individual and group tasks with an element of research into techniques for the Clothing/Fashion Industry and as an owner of a small Design Studio.

LEARNING UNIT OUTCOME:

- Demonstrate the exploration of the potential of a range of materials, processes, tools and equipment.
- Produce a unique end product or prototype from a personally - developed design idea, utilizing previously unused knowledge, skills and processes.
- Apply the principles of Craftsmanship: excellence, adaptability and innovation.

- Identify, analyse, critically reflect on and address complex problems by applying evidence based solutions to develop a production strategy which satisfies the requirement of the group activity brief.

ASSESSMENT CRITERIA

- Analyse the properties, uses and availability of materials, processes, tools and equipment relevant to design production and the learner's personal development.
- Utilize relevant production skills to complete the product with excellence within work schedule and agreed resources.
- Recognise what constitutes excellence in terms of skills and techniques.
- Analyse and discuss any relevant and new techniques/methods which could be exploited in the production of work.
- Demonstrate the ability to work with others through negotiation, cooperatively as a group within identified roles within the group.

Activity Requirements

Take into consideration the Health and Safety aspects for yourself, your peers and the institution.

You are required to use the pre-determined problem, that is, the difficulty that students' face in interpreting a technical drawing/image or flat drawing into a final product (fitted garment,). Utilize previously learnt knowledge, skills and processes to find solutions as a group to produce a final outcome/product(garment). Consider your experience of the previous group activities and incorporate or eliminate what worked or did not work.

- Members will be divided into five groups with 3 members,
- The activity must be completed within the required time.
- 3-3 ½ days have been allocated for the activity.
- Scheduled activity time: 9.00am – 4.00pm (Monday, Tuesday and Wednesday)

Thursday morning will be a feedback session and facilitator will conduct interviews.

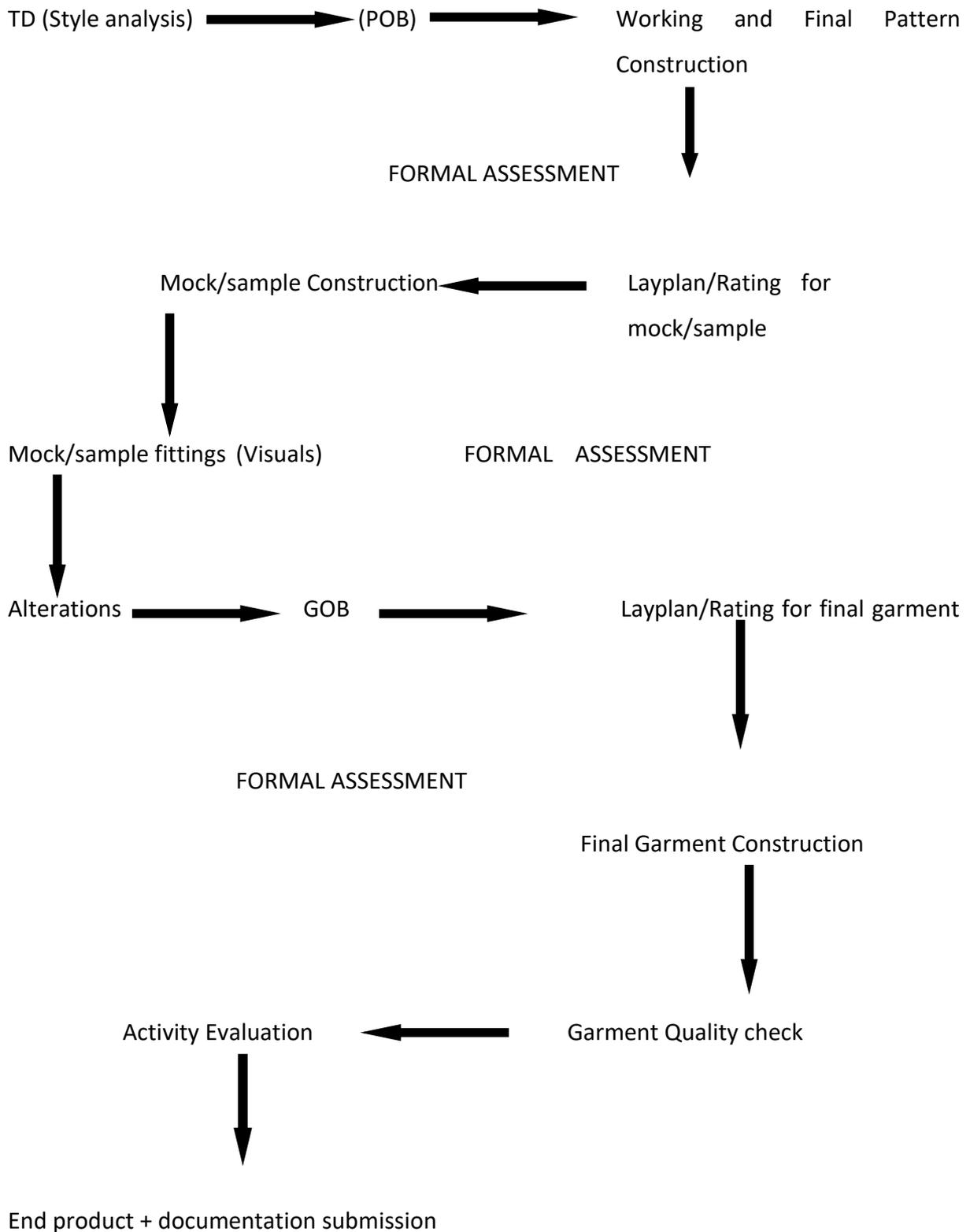
- All work must be completed on the premises of the institution.
- Lunch breaks to be taken as a group.
- Groups to work at the designated workstations.
- Each stage of the process must be discussed with all members e.g. POB, all members discuss and write down their ideas and then select the most appropriate way of pattern construction.

An activity process has been provided as a guide for the completion of the activity.

Appendix 2

ACTIVITY PROCESS

The problem: The difficulty in interpreting a flat Drawing/TD into a final product (garment)



Appendix 3



ELIZABETH
GALLOWAY
— ACADEMY OF —
FASHION
STELLENBOSCH

Student Notation

Course: Technology 111

Module: Focus on Production 111

Learning Unit: Focus on Production – Specialised Technique (Group Activity for cooperative learning and creativity)

Learning Unit Number: 320.1

Facilitator: Monique Rolando

NOTATION (compiled by Monique Rolando - Senior Facilitator for the Focus on Production module at Elizabeth Galloway Academy of Fashion Design)

As a facilitator a problem that I encounter in the Focus on Production module is the difficulty students' face in interpreting a technical drawing/image or flat drawing into a final product (fitted garment). Using two strategies (problem-based learning and cooperative learning) together with a diverse group of students have the possibility of improving students' critical thinking and decision making in accomplishing an end product (Johnson, Johnson and Smith, 1991:6). Learning is a process in which the learner actively constructs new knowledge on the basis of current knowledge thus developing not only problem solving skills but using appropriate problems to increase knowledge, understanding and developing cognitive skills such as creative thinking (Awang and Ramly, 2008:635). Through research conducted in the field of apparel (fashion) design educators find that cooperative learning strategies (problem based learning, collaborative learning and team-based) worked best (Sohn and Kim, 2016:59).

Problem based learning: Barrett (2005:56) cites Barrows and Tamblyn (1980) definition of PBL as “the learning that results from the process of working towards the understanding of a resolution of a problem. The problem is encountered first in the learning process”.

Cooperative learning can be described as the instructional use of small groups of learners empowering them to work together in order to maximise their learning and that of others (Johnson, Johnson and Smith, 1991:5). Johnson, Johnson and Smith (1991:5) point out that from research conducted such learning produces higher achievement, more positive relationships among students and healthier psychological adjustments than do competitive or individualistic experiences.

Creativity: Alhajri (2013:1) suggests that there does not seem to be a definite agreed upon definition for creativity and it appears to be a highly subjective experience with no consensus reached as to whether creativity is located in a person, a product or a process (Alhajri, 2013:26). Other researchers have defined creativity according to the process itself which is “the emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand, and the materials, events, people, or circumstances of his/her life on the other” (Rogers cited by Amabile, 1998:126). Amabile (1988:126) mentions that some researchers focus on a product (idea) oriented definition which is “creativity is the production of novel and useful ideas by an individual or small group of individuals working together”. The product is viewed as creative by people familiar with the field in which it is produced (Amabile, 2012:3).

For a project to be cooperative and successful, Johnson and Johnson (1999:70), Kaufman, Sutow and Dunn (1997:38) and Smith, (1996:75) have determined six essential elements that could also foster creativity:

- Positive interdependence: This is a perception that we are linked to others in a way that we cannot succeed unless they do. The benefit is not for an individual but for all group members. Each student is assigned a role towards the completion of the project. Rewarding is a means of structuring positive interdependence and this can be in the form of a shared grade (reward interdependence), shared resources (resource interdependence) and or division of labour (task interdependence).

- Individual accountability: Each student (group member) has to be responsible for their own learning even though they help each other allowing them to become stronger individuals within a group and when independent tasks are needed to be completed. Individual assessment is conducted and feedback is provided to the group. Through assessment, members and facilitator can establish if there are individuals requiring assistance or if the individual is being lazy. A facilitator can monitor this by randomly asking a student questions about individual tasks or group progress.
- Face-to-face verbal interaction: Students need to be verbally active in explaining, brainstorming, encouraging each other and linking new and previously learnt knowledge in an effort to achieve the required project outcomes. Facilitators must observe the silent students who may not be contributing to the learning of others or they and this must be addressed immediately.
- Social Skills (teamwork skills): Groups cannot function effectively and efficiently without social skills such as leadership, decision making, trust building, communication and conflict resolution. Since many students may not have worked cooperatively, these skills need to be taught and understood before the implementation of a project. Class exercises can be introduced in informal learning lecture time in which the facilitator can discuss and explain the relevant teamwork skills required for the completion of a group project.
- Group processing: Students must periodically assess how well they are progressing as a group and how they could improve to ensure successful completion of the required task. Decisions can be made on whether to continue with the current technique or whether to make a change.
- Appropriate grouping: The facilitator must ensure that each group contains members with various attributes to strengthen problem-solving and social skills of all group members.

The inclusion of the essential cooperative learning elements together with the stages to achieving creativity allows students to fully review and understand a problem and seeing

problems that are not clearly obvious (Robbins, 2001:132). Graham Wallas (1926:40) describes four stages of thinking that could lead to the development or expression of a new idea summarised as follows:

- Preparation stage: The problem is investigated systematically.
- Incubation stage: The problem is not consciously thought about.
- Illumination stage: The appearance of the “happy idea” together with the psychological events which immediately lead to and accompanied that appearance.
- Verification stage: The validity of the idea is tested.

Similarly, the approach Schmidt and Moust (2000:23) propose could be incorporated into the phases as described by Torrance (in Sternberg, 1988:45), Jordaan and Jordaan (1989:490) and Bergh and Theron (1999:142). Cooperative learning (formal and informal) could then be used along these phases to foster creativity.

1. Clarify unknown terms and concepts in the problem description (orientation phase).
2. Define the problem: that is, list the phenomena to be explained (orientation phase).
3. Analyse the problem: “brainstorm”, try to produce as many different explanations for the phenomenon as you can. Use prior knowledge and common sense (preparation phase).
4. Criticise the explanations proposed and try to produce a coherent description of the processes that, according to what you think, underlie the phenomena (incubation phase).
5. Formulate learning issues for self-directed learning (illumination phase).
6. Fill the gaps in your knowledge through self-study (illumination phase).
7. Share your findings with your group and facilitator and try to integrate the knowledge acquired into a comprehensive explanation for the phenomena. Check whether you know enough (verification phase).

Problem Solving Objectives by Costa (1985:233)

The main objective for creative problem solving is to assist students in developing

1. Awareness of the importance of creative efforts in learning, learning in context, artistic searches and personal living,
2. Motivation to use your creative potential,
3. Self-confidence in your creative ability,
4. Sensitivity awareness to problems that surround you - an attitude of 'constructive discontent' - lack of commitment or satisfaction,
5. Greater curiosity – an awareness of the many challenges and opportunities in life,
6. An open mind toward the ideas of others and
7. Improved abilities associate with creativity, enabling you to
 - sense problems, challenges and opportunities,
 - observe, discover and analyse relevant facts,
 - see problems from different viewpoints and redefine them productively,
 - defer judgment and break away from habit forming thinking,
 - discover new ideas,
 - use check lists to discover new ideas,
 - refine unusual ideas into useful ones,
 - evaluate the consequences of one's proposed actions – taking into account all relevant criteria,
 - develop and present ideas for maximum acceptability,
 - develop action plans and implement ideas and solutions and
 - check the effectiveness of actions and take corrective measures when available.

Appendix 4



Focus group questions

Course: Technology 111

Module: Focus on Production 111

Learning Unit: Focus on Production – Specialised Technique (Group Activity for cooperative learning and creativity)

Learning Unit Number: 320.1

Facilitator: Monique Rolando

-
1. Students are thought to be reluctant to participate in group activities. Is this the case in your class?
 2. If yes are there any strategies/approaches/tactics that you utilise to combat/alleviate/improve this attitude?
 3. Do you notice an increase in student performance when they work in groups?
 4. Is this the first time that you have heard of cooperative learning?
 5. What does it mean to you?
 6. Is student participation increased when you incorporate cooperative learning strategies/approaches/tactics?
 7. It is believed that students are more comfortable with teacher-centred learning strategies (the lecturer instructs students what to do). What is it in the case in your class?
 8. What are the cooperative learning strategies you utilise within your classroom?

9. Have you found that cooperative learning makes the student learning experience more dynamic and enjoyable?
10. When/in what situations do you find cooperative learning most useful?
11. How do you prepare yourself as a student for working in groups?
12. What elements of cooperative learning promoted your creativity?
13. How do you label a creative product in this activity?
14. Do you think that this activity was useful?
15. Yes/no give reasons?
16. Would you do this activity again?
17. Is there anything that you would recommend to change for future activities?

Adapted from Keritha McLeish, 2009. Attitudes of Students Towards Cooperative Learning at Know Community College: A Descriptive Study.

Adapted from Michele Ferraro, 2015. Investigation of Cooperative learning and Collaborative testing in grades 4-8.

Appendix 5



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Observation structure

Day one

Cooperative Elements (PIGS-F)	Characteristics	Group One	Group Two	Group Three	Group Four	Group Five
(P) Positive Interdependence - Relationships - Contribution of group members	dynamics of the relationships members in accomplishing					
	group acknowledgement					
	engagement with the activity goals					
	objectives of the activity and process					
	cohesiveness among members in accomplishing the activity					
(I) Individual Accountability - Individual participation - Performance dependant on all group members	individual participation by each member					
	group members expectations for individual participation					
(G) Group Processing - Functioning - Clear goals, processing events	individuals function as a cohesive group					
	the group set aside time to reflect about the goals of the					
	the group reflect on the process toward completing the activity					

(S) Social Skills - Communication - Clarification, paraphrasing, praising	making eye contact with members during communication					
	respecting ideas of all group members					
	group engagement in forming, functioning and fermenting about the activity					
(F) Face to Face Interaction - Encouragement - Facilitating communication	all members ideas were heard and valued					
	all members actively contribute to the designing and processing of the activity					

Day two

Cooperative Elements (PIGS-F)	Characteristics	Group One	Group Two	Group Three	Group Four	Group Five
(P) Positive Interdependence - Relationships - Contribution of group members	dynamics of the relationships members in accomplishing					
	group acknowledgement					
	engagement with the activity goals					
	objectives of the activity and process					
	cohesiveness among members in accomplishing the activity					
(I) Individual Accountability - Individual participation - Performance dependant on all group members	individual participation by each member					
	group members expectations for individual participation					
(G) Group Processing	individuals function as a cohesive group					

- Functioning - Clear goals, processing events	the group set aside time to reflect about the goals of the					
	the group reflect on the process toward completing the activity					
(S) Social Skills - Communication - Clarification, paraphrasing, praising	making eye contact with members during communication					
	respecting ideas of all group members					
	group engagement in forming, functioning and fermenting about the activity					
(F) Face to Face Interaction - Encouragement - Facilitating communication	all members ideas were heard and valued					
	all members actively contribute to the designing and processing of the activity					

Day three

Cooperative Elements (PIGS-F)	Characteristics	Group One	Group Two	Group Three	Group Four	Group Five
(P) Positive Interdependence - Relationships - Contribution of group members	dynamics of the relationships members in accomplishing					
	group acknowledgement					
	engagement with the activity goals					
	objectives of the activity and process					
	cohesiveness among members in accomplishing the activity					
(I) Individual Accountability - Individual participation - Performance	individual participation by each member					
	group members expectations for individual participation					

dependant on all group members						
(G) Group Processing - Functioning - Clear goals, processing events	individuals function as a cohesive group					
	the group set aside time to reflect about the goals of the					
	the group reflect on the process toward completing the activity					
(S) Social Skills - Communication - Clarification, paraphrasing, praising	making eye contact with members during communication					
	respecting ideas of all group members					
	group engagement in forming, functioning and fermenting about the activity					
(F) Face to Face Interaction - Encouragement - Facilitating communication	all members ideas were heard and valued					
	all members actively contribute to the designing and processing of the activity					

An evaluative rank will be as yes, no or unsure as an indicator of the participants' involvement in the cooperative learning element.

Appendix 6



ASSESSMENT FORM

Course: Technology 111

Module: Focus on Production 111

Learning Unit: Focus on Production – Specialised Technique (Group Activity for cooperative learning and creativity)

Learning Unit Number: 320.1

Facilitator: Monique Rolando

Group No: _____

Activity	Description	Assessment Criteria	Mark	Students Mark
Technical Drawing	<ul style="list-style-type: none"> - Clearly labelled Back, Front and Side Views. - Description of TD elements that assist in Pattern and garment construction 	Illustrate the process of development from inception to completion.	20	
POB	<ul style="list-style-type: none"> - Detailed POB with the relevant subheadings - Information provided is relevant to the pattern construction 	Identify and use a range of techniques and skills to ensure that the work meets the necessary standards.	15	

WP + FP	<ul style="list-style-type: none"> - WP + FP indicate all relevant style line and pattern information. - Patterns are neatly presented 	Utilize relevant production skills to complete the product within the work schedule and agreed resources.	45	
Mocks+ Alteration Form	<ul style="list-style-type: none"> - Mock is constructed from a fabric with similar characteristics to the final fabric. - The mocks have the necessary fitting stitch lines such as staystitch on necklines and waistlines. - The mock is fitted on the mannequin 	Utilize relevant production skills to complete the product within the work schedule and agreed resources.	40	
GOB	<ul style="list-style-type: none"> - Detailed GOB with the relevant subheadings - Information provided is relevant to the garment construction 	Identify and use a range of techniques and skills to ensure that the work meets the necessary standards.	15	
Final garment	<p>TECHNICAL SKILLS</p> <ul style="list-style-type: none"> - Appropriate techniques used. - Appropriate machinery used. - Quality of sewing techniques. - Overall appearance of garment is appealing. - In Process pressing and final pressing - All loose threads have been trimmed away. - Presentation – hanger loops, garments on hangers, garment bags, labelling. 	<ol style="list-style-type: none"> 1. Identify and use a range of techniques and skills to ensure that the work meets the necessary standards. 2. Recognise what constitutes excellence in terms of skill and technique. 3. Analyse the properties, uses and availability of materials, processes, tools and equipment relevant to fashion wear production and their own personal development. 4. Take into consideration the Health and Safety aspects within the work environment (individual, peers and production equipment). 	50	

Evaluation	Group Evaluation Form provided	1. Establish the final evaluation criteria, identifying modifications during the production process 2. Evaluate performance from a personal perspective and that of appropriate colleagues and individuals 3. Identify future development needs and possible progression routes.	15	
		TOTAL	200	
		%	100	

0%-49%	50%-64%	65%-74%	75%-100%
Fail	Pass	Merit	Distinction
<ul style="list-style-type: none"> - Little or no understanding of the brief. - Inadequate Technology ability. 	<ul style="list-style-type: none"> - Adequate understanding of the brief. - Adequate Technology ability. 	<ul style="list-style-type: none"> - Sufficient understanding of the brief. - Good Technology ability. 	<ul style="list-style-type: none"> - Clear understanding of the brief. - Strong Technology ability.

Facilitator's Researcher's Signature: _____ Date: _____

Double Marker: _____ Date: _____

Appendix 7



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Stages of the Process

Course: Technology 111

Module: Focus on Production 111

Learning Unit: Focus on Production – Specialised Technique (Group Activity for cooperative learning and creativity)

Learning Unit Number: 320.1

Facilitator: Monique Rolando

Group No:

Each member must be assigned a role for the activity but each stage of the process must be discussed with all members (as a group) e.g. POB, all members discuss and write down their ideas and then select the most appropriate way of pattern construction.

Each member must highlight their contribution using a highlighter. That is Respondent 100 will be blue, Respondent 200 will be pink and Respondent 300 will be orange.

Apply the following phases to your discussions:

PREPARATION PHASE:

- The problem is investigated systematically. See problems from different viewpoints.
- Clarify unknown terms and concepts in the problem description.
- Analyse the problem: “brainstorm”, try to produce as many different explanations for the problem as you can.
- Use prior knowledge and common sense. Break away from habit bound thinking.

INCUBATION PHASE:

- The problem is not consciously thought about.
- Criticise the explanations proposed and try to produce a coherent description of the process that, according to what you think, underlie the problem.
- Redefine the different viewpoints.

ILLUMINATION PHASE:

- The appearance of the “happy idea” together with the psychological events which immediately lead to and accompanied that appearance.
- Formulate learning issues for self-direction.
- Fill the gaps in your knowledge through self-study.
- Explore new ideas.
- Refine unusual ideas into useful ideas.
- Develop action plans and implement ideas and solutions.

VERIFICATION PHASE:

- The validity of the idea is tested. Develop and present ideas for maximum acceptability.
- Share your findings with your group and facilitator and try to integrate the knowledge acquired into comprehensive explanations for the problem.
- Check whether you know enough.

Activity discussion and question/answer session (Facilitator and participants)

Technical Drawing (Style analysis)

- Illustrate a back view of the TD provided. Take into consideration the elements of the front view, the back view must complement the front view and be proportionate to the front view.
- Identify all elements of the TD. Clarify terminology of TD elements.

Group discussion before finalising TD

Respondent	Comments

Rough Technical Drawing (to be inserted below) with discussion and decisions made

Final Technical Drawing (to be inserted below)

Pattern operation breakdown (POB)

Determine the sequence for the construction of the working and final pattern using the appropriate sub-headings. Take note that the below headings are a guide and your POB may require further sub-headings.

- All group members must be part of this process (discussions and decisions made.
- Silhouette
- Front
- Back
- Other

Respondent	Comments

Pattern Operation Breakdown continued

Mock/sample construction

A mock/sample must be constructed to determine if your pattern has worked. Some elements can be eliminated in the construction and this will be determined by the facilitator.

All members must be participative in this process. That is to determine the best lay-plan.

The construction of the garment can be constructed by one member or segments constructed by all members.

- Mock/sample fabric to be used.
- A lay-plan of the patterns must be provided.
- Mock/sample must be fitted on the mannequin.
- Fittings to be done as a group and with the facilitator.
- Visuals of the mock/sample must be provided as evidence for the fittings requirement.
- A preliminary garment operation breakdown must be developed.

Respondent	Comments

Preliminary GOB

Alterations

Any alterations required must be made before a final garment is constructed. All members must be participative in this process and document each member's suggestions.

- Mock must be fitted on the mannequin in the presence of the facilitator.
- Document all alterations required.
- Alterations must then be made on the pattern.
- Major alterations to the pattern will require a 2nd mock/sample. This will be determined as a group and with the facilitator.

Respondent	Comments

Garment operation breakdown (GOB)

Once the mock/sample has been approved, a final GOB must be completed using the required sub-headings. All members must be participative in this process and document each member’s suggestions.

Take note that the below headings are a guide and your GOB may require further sub-headings.

- Preparation
- Sub-assembly
 - Front
 - Back
- Main Assembly
- Finishes

Respondent	Comments

Garment Operation Breakdown continued

Final garment construction

The garment must be constructed according to the GOB. The construction of the garment can be constructed by one member or segments constructed by all members.

- Stitch length sample to be submitted.
- Machine tension sample to be submitted.
- Overlock sample to be submitted.
- Seam Samples

Respondent	Comments

Insert test samples below

Quality Check

Use the provided checklist to complete a quality check of the final garment. All members must be participative in this process and document each member's suggestions. Add in elements of the garment that are not listed below.

	Checked by Respondent_____	✓
Stitch length		
Machine tension		
Seam puckering		
Seam allowance		
Waistband		
Pockets and elements		
Zip and elements		
Buttonhole and button		
Hem		
In process pressing		
Final Pressing		
Presentation: labelled +garment is on a hanger		

4. How will this task help you in the future?

5. How would you evaluate your time management in completing this project?

Submission of the activity.

- All components of the activity must be submitted to the facilitator.
- Documents for the research component can be labelled anonymous or as Respondent 100.
- Documents for the research element of the activity will be safely stored by the facilitator.
- Patterns to be submitted in a brown/white envelope.
- Garments to be neatly labelled and presented on a hanger.

Appendix 8



Ethical Clearance Letter

To: Monique Rolando

2 February 2018

Re: Ethical clearance request to conduct case study research at the Elizabeth Galloway Academy of Fashion Design (EGAFD).

This letter serves to confirm your request dated 15 December 2017, to conduct a case study research within the Focus on Production 3 module at the EGAFD during the first semester of 2018. The study being in line with the academic requirements for the Masters in Philosophy in Higher Education at the Stellenbosch University for which you are currently registered.

You are hereby granted consent and ethical clearance to conduct the research with the following parameters:

All students participating in the study must be fully informed, both verbally and in writing and must have provided signed consent prior to the studies commencement.

No bias should be shown by the researcher to any student not wanting to participate in the study.

All pedagogical changes implemented must be in line with the Focus on Production 3 curriculum as well as the relevant EGAFD academic policies.

The study should not negatively impact on the researcher's academic and or other responsibilities at the EGAFD.

The management team at EGAFD wish you success with the study and offer their full support.

Yours Sincerely,

ELIZABETH GALLOWAY ACADEMY OF FASHION DESIGN

26 Techno Road, Techno Park, Stellenbosch, South Africa,

7600

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Appendix 9



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**STELLENBOSCH UNIVERSITY
CONSENT TO PARTICIPATE IN RESEARCH**

Title

Exploring the role of cooperative learning in fostering creativity within a fashion design context

You are asked to participate in a research study conducted by Monique Rolando, from the Faculty of Education at Stellenbosch University. The results of this study will be contributed to a research dissertation. You were selected as a possible participant in this study because you are a registered 3rd year fashion student at the Elizabeth Galloway Academy of Fashion Design (EGAFD) in 2018 and completed your 2nd year of study in 2017 and your Focus on Production module was facilitated by Monique Rolando.

1. PURPOSE OF THE STUDY

The purpose of this study is to explore how, if at all, can cooperative learning foster creativity and to explore if using groups for the completion of tasks do generate new ideas/products as this could assist students in developing skills necessary for industry.

2. PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

- Participate in a group activity.
- Provide input as a group member in supporting the purpose of the study.
- Provide feedback in a professional manner to support this study.
- Participate in an interview.
- Be aware that the facilitator will be part of the study as an observer and that data will be collected from observations made.

The study is a group activity that will be completed in 3-3 ½ days during the Focus on Production module time. A process chart has been provided together with a written brief of the daily requirements for the activity. Members of groups are selected by the facilitator in order to create diversity within the groups.

3. POTENTIAL RISKS AND DISCOMFORTS

I do not foresee any potential risks and discomforts for any participants.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

The aim of this study is to use a group activity based in class and designed to give students the opportunity to experience a simulated work scenario in which decisions have to be made, explore methods towards a solution, learn how to work in a team and reflect on individual and group members roles in a process to create ideal solutions and meeting the task outcomes.

5. PAYMENT FOR PARTICIPATION

No remuneration will be received for your participation in this study.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained throughout this study. Participant's name will be known for the activity which requires EGAFD assessment and for the research study the name will be eliminated and a code such as respondent 100 will be used. Recorded interviews will be saved onto the EGAFD server. A research folder will be created on the EGAFD server and recorded interviews will be saved into this folder and only be accessible to senior facilitators as verification for this study. Data collected will only be used to support this study, for academic purposes and should the University of Stellenbosch require evidence (hardcopy evidence, observation data, interview data and written responses). No information will be disclosed without your permission. The researcher will ensure that all ethical procedures and practices are followed during the activity, data collection and analyses.

7. 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.

- Arising issues will be dealt with immediately by the facilitator and the relevant group/individual member.
- Should the issue need to be disclosed this will be done with senior facilitators of EGAFD.
- All issues will be documented confidentially as part of the research.

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact:

Research Supervisor (University of Stellenbosch – Education Faculty)
Dr. Liezel Frick
Work:

9. 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 ----- at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

The information above was described to me by Monique Rolando in English and I am in command of this language or it was satisfactorily translated to me. I 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.

11. Name of Subject/Participant

Name of Legal Representative (if applicable)

12. Signature of Subject/Participant or Legal Representative

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to _____ [*name of the subject/participant*] and/or [his/her] representative _____ [*name of the representative*]. [He/she] was encouraged and given ample time to ask me any questions. This conversation was conducted in English and no translator was used.

Signature of Investigator

Date