DEPARTMENT OF VISUAL ARTS

MA IN VISUAL ARTS (ART EDUCATION)

Examining the flipped classroom approach to teaching in a creative development setting in higher education in South Africa

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DECLARATION

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ABSTRACT

In a traditional classroom setting teachers tend to teach their class with little interaction with their students. The 'flipped' classroom approach has received attention for its potential as a new educational method that is better supported by current collaborative constructivist educational practice. In flipped classroom teaching, I acted as a facilitator, directing students in conversation and higher-level problem-based learning activities. An in-depth exploration was undertaken of the application and results of a flipped classroom in a creative tertiary educational context. For this study, two classroom groups of students, enrolled for the same module, were used. In both of the two classrooms the flipped classroom approach was employed, and identical assignments were given to both classes of students. Lecturer observations as well as student questionnaire data were gathered, and inductive content analysis was performed. From all the data gathered, a couple of important subjects or topics were often found during data analysis. Knowledge gained, peer recognition and lecturer involvement were some of the topics that were perceived as positive by the students as well as the researcher, with the exception of workload distribution that was not perceived as equally divided. Thus, it appears as if positive perception, experience and knowledge gain were achieved by implementing the flipped classroom teaching style. One of the aspects that stood out was that some of these students perceived that they could achieve more in a group setting, as a result of the knowledge transfer and differing skills of each student. These students also interacted in a social community setting by providing feedback and discussing whole class input.

OPSOMMING

In tradisionele klaskameronderrig is onderwysers geneig om min interaksie met hul studente te hê. Die ‘omgekeerde’ klaskamerbenadering is in die kollig vir sy potensiaal as 'n nuwe opvoedkundige metode wat beter ondersteun word deur die huidige samewerkende konstruktivistiese opvoedingspraktyk. In die omgekeerde klaskameronderrig tree die dosent op as fasiliteerder, lei studente in gesprek, en begelei hulle op ‘n hoër vlak deur probleemgebaseerde leeraktiwiteite. ‘n Diepgaande ondersoek van die aanwending en resultate van 'n omgekeerde klaskamerbenadering is in 'n skeppende tersiêre opvoedkundige konteks gedoen. Vir hierdie ondersoek is twee klasse met studente wat vir dieselfde module ingeskryf het, gebruik. In albei die klasse is die omgekeerde klaskamerbenadering aangewend, en identiese opdragte is aan albei klasse se studente gegee. Sowel die dosent se waarnemings as data vanuit studentevraelyste is versamel en induktiewe inhoudsanalise is uitgevoer. Uit al die data wat ingesamel is, het 'n paar belangrike onderwerpe tydens data-analise na vore getree. Kennis wat verkry is, erkenning van medestudente en dosentbetrokkenheid was van die onderwerpe wat deur die studente sowel as die dosent as positief beskou is, met die uitsondering van werksladingverspreiding. Dit blyk dat deur die omgekeerde klaskamerbenadering aan te wend, ‘n positiewe ervaring en ‘n toename in verkryging van kennis bereik is. Van die aspekte wat uitgestaan het, was dat hierdie studente meer in groepsverband as individueel kon bereik, weens die metode van kennisoordrag en die verskillende vaardighede van elke student. Hierdie studente het ook interaktief binne 'n sosiale omgewing terugvoering gegee en elke klas in sy geheel het aan die terugvoering deelgeneem.

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1 ORIENTATION TO THE RESEARCH

1.1 Introduction

In recent years significant changes in the economy, information technology and student demographic has had an influence on educational institutions (Rotellar & Cain 2016). This educational environment is different from what was observed a couple of years ago because the progression of information technology has altered the way in which content, information and knowledge are delivered to the human race. Because of this drive towards change, many lecturers and educational institutions have gravitated towards alternative teaching techniques and modern models of instruction. The 'flipped' or inverted classroom practice is a contemporary approach to educational design (Rotellar & Cain 2016). During my time as an educator, I have been highly intrigued by the concept of the flipped classroom as a teaching methodology.

The flipped classroom approach can be explored through reflection, which can be defined as a process of critical self-determination (Yip 2007:190). I felt that to better myself as an educator such reflection would lead to the investigation of the flipped classroom from my own experience at a tertiary institution.

The student numbers in education continue to increase and concerns are raised because of the lack of student engagement with the educator and content (Yip 2007:190). One of these concerns is the sustained employment of 'traditional' teaching and learning methods (Grant 2013:3). In addition, the potential unlocked by information technologies demands drastic changes in pedagogical models. This shift calls for studies to be conducted using alternative models of education. Taking as the point of departure a collaborative constructivist theoretical framework, this study examined the flipped classroom, for its potential to improve teaching and learning outcomes at a tertiary level. I hope to inspire reflection of flipped learning as a plausible, evidence-based, new course for tertiary education (Grant 2013:3). Next, I discuss the background to the research in order to provide context to the aims and problem statements of this particular study.

1.2 Background

I am a lecturer at a private tertiary education institution with the focus on design, which is situated in Pretoria. The foundation of course content for this institution includes innovation in brand, design and business. In this study I do not disclose the name of this institution, nor any of the names of the students that I used for my study. This is my fourth year as a lecturer at this institution where I teach various students across a variety of disciplines and modules. English is used as the primary language of instruction.

Freire believed that people are creators of culture and therefore producers of history (Freire 1974:4). Individuals are in a sense un-complete and will also strive to be more, better; to exceed. These un-complete individuals, both educators and students, have much to learn from the other party in the education process (Freire & Shor 1987:165). A mutual knowledge transference should occur between

student and educator, where the educator still fulfils the role of conducting the learning process (Freire & Shor 1987:32; Palmer, Cooper & Bresler 2001:130).

Paulo Freire (1987:30) stated that a definite inequality exists between the learner and the educator. While Freire admits that the educator must learn from the students, it does not mean student and educator are on an equal basis. For example, at the onset of a dialogue between the educator and the student the educator has a great deal of knowledge and knows where he or she wants to lead the students (Fischman, McLaren, Sünker & Lankshe 2005:170). Commentary on Freire's work stated that all educators at some point had to begin with Freire's notions on education, whether it be based on praxis or on the recognition that a human being is not wholly knowledgeable (Freire & Shor 1987:163). Genuine critical pedagogy involves this constant struggle to improve and better our knowledge as educators and to do self-reflection to improve pedagogical practices (Fischman *et al.* 2005:178).

The focus of Freire's work on the role of education in the struggle of the oppressed people is characterised by a combination of his political commitments, humbleness, strong ethical outlook and remarkable intellectual acuity (Palmer *et al.* 2001:128). Debatably his most propagative idea is that education is constantly a political act. For Freire, education includes social relations and ultimately involves political choices. Freire maintains that questions, what? why? how? to what conclusion? for whom? are essential to any educational pursuit. Every educator must ask these questions, and the answers to said questions will be key guides to any educational project (Freire & Shor 1987:143). It is impossible to remain neutral in education; an educator must constantly be aware that all educational practices have social consequences. These educational practices will either propagate marginalisation and prejudice, or they will assist in constructive social transformation. According to Freire, most social relations in a capitalist society, including those involved in education, are based on relations of oppression (Palmer *et al.* 2001:129). A vital foundation of Freire's notions on education is that educators should choose to position the culture, knowledge and conditions of the excluded disadvantaged above their own (Palmer *et al.* 2001:130). Emancipatory education is not only accumulation of facts, but rather recognising oneself as a subject in a social system, who is able to rephrase knowledge gained and to act on this knowledge to change the social system radically. A mutual knowledge transference should occur between student and educator, where the educator still fulfils the role of conducting the learning process (Palmer *et al.* 2001:130).

In a traditional classroom setting teachers tend to teach their class with little interaction with their students (Hao & Lee 2016:151). The attention-span of the students within the classroom space is difficult to maintain because of the one-directional imparting of knowledge. When students engage actively with critical learning they tend to promote their learning, which leads to overall academic improvement (Hao & Lee 2016:151). A disadvantage of traditional one-directional teaching is that students may take in large amounts of information in the short term but fail to retain this information in the long term because they simply memorise whatever is being said or shown on slideshows. Rather than truly taking in the knowledge being conveyed, they memorise the information and then regurgitated during examination, without long-term retention (Rotellar & Cain 2016:3). In comparison to the traditional teaching style, the flipped classroom approach attempts to increase student engagement in class (Hao & Lee 2016:152; Rotellar & Cain 2016:1).

Creative thought process can be expressed as a mental process involving the generation of new ideas or concepts, or new associations between existing ideas or concepts (Al-Zahrani 2015:1136). Appropriately designed teaching methodologies can have a positive effect on creative abilities (Al-Zahrani 2015:1134). One such teaching methodology is the flipped classroom, which may promote critical thinking skills and enhance creative abilities (Al-Zahrani 2015:1134). The flipped classroom relies strongly on visualisation, which in turn supports the generation of creative ideas. The flipped classroom has received attention for its potential to integrate information technologies in a new educational method that is better supported by current collaborative constructivist educational practice. In flipped classroom teaching, the lecturer acts as facilitator, directing students in conversation and higher-level problem-based learning activities (Grant 2013:3).

Flipped classroom teaching shifts the role of the lecturer from a presenter to a facilitator, mentor or instructor. Lecturers should be willing to give up their presentations and settle for a wider variety and diversity of course material (Grant 2013:9). During flipped classroom teaching students regulate and guide their own learning, investigating materials in their own time, sometimes more than once. Students are actively involved in the learning process. The classroom is transformed to an interactive space where students collaborate with one another and produce their own knowledge in meaningful ways. Each student also receives personalised guidance in addition to forming a part of a classroom community (Grant 2013:4). When comparing traditional objectivist teaching with the flipped classroom, students in active learning environments have exhibited enhanced conceptual understanding of the subject matter as well as better long-term memory recollection (Grant 2013:4).

In addition, the flipped classroom nurtures scholar proprietorship of learning through the active participation and interaction of students during lectures (O'Flaherty & Phillips 2015:86). Advocates of the flipped class indicate that this method of teaching is beneficial for many reasons: students can learn at a pace that is suited to each individual, students have the option to engage with digital media according to their own schedule or when they have access to it, increased lecture time can be spent on discussions and problem solving, and these discussions could originate from students (O'Flaherty & Phillips 2015:86). A greater responsibility is therefore placed on the students. Flipped learning has the potential to equip students as well as persons who are already part of the work force (O'Flaherty & Phillips 2015:86).

Millennial students seem to be less likely to working independent and are thus more team-oriented because working independently has a higher risk of failure associated to it (Monaco & Martin 2007:43). The method and technology applied ten years ago during teaching will not suffice when used with this new generation (Monaco & Martin 2007:42). In order to reach the modern student, lecturers should understand the students and work in collaboration with them, employing a variety of content delivery styles to engage students with their own learning process (Godwin-Jones 2005:17; Monaco & Martin 2007:43).

With all this in mind a problem statement was articulated that focused on gaps that are not answered in the existing literature.

1.3 Problem statement and focus

The lecturer's role has evolved to a promoter of lifelong learning by employing creative content delivery to keep students engaged (Monaco & Martin 2007:46). Nowadays, lecturers need to be content experts as well as provide a space of engagement and discovery in their classrooms (Monaco & Martin 2007:46). Students in general are less likely to engage if they only interact with other students; when students interact with one another as well as with the lecturer, students are more likely to participate. If group activities are employed, they ought to be designed to promote independent critical thinking as well as feedback from the lecturer. This implies that it is not the use of collaborative peer-to-peer group work alone that keeps students engaged but the combination of group work and an involved lecturer (Nguyen, Cannata & Miller 2016:173).

Students are expected to analyse and overcome problems on a daily basis. The primary aim of this approach is to prepare youths for life, or students for the work place. Students should not be controlled by lecturers but rather reminded of their responsibilities (Onatra & Peña 2004:159), which include working through course material at their own pace and time. Lecturers additionally facilitate group discussions with peers and one-on-one mentorship. This is one example of flipped classroom learning and teaching (Onatra & Peña 2004:160). Every individual that forms part of a social group must keep in mind that he or she exerts an influence on the rest of the community and should therefore accept the responsibility that comes with this influence. Lecturers' actions will leave lasting impressions in the students' lives (Onatra & Peña 2004:161).

Currently the concept of blended learning is being utilised in higher education institutions (O'Flaherty & Phillips 2015:85). This entails a combination of individual one-on-one instructions as well as a variety of out-of-class assignments facilitated through a range of information technologies, as is the case at my current institution. This type of learning has become very popular in the case of online assignments being completed regularly at the institution where I am employed. Reflecting on blended learning this can be seen as the predecessor to the flipped classroom (O'Flaherty & Phillips 2015:85).

Learning through interaction provides fascinating topics that were investigated: how students learn together through their interaction with one another; how students might enhance their learning as part of a group interacting (Barker, Wallhead & Quennerstedt 2017:275). It was the aim of this study to provide a reflection on the use of the flipped classroom approach. An in-depth case study was conducted on the use of the flipped classroom approach. The application and results of flipped classroom teaching as well as blended learning in a creative tertiary educational context were explored in depth (Barker *et al.* 2017:277). The following questions were answered and reflected upon:

1. What are the advantages of flipped classroom teaching in a tertiary creative development setting?
2. What are the disadvantages of flipped classroom teaching in a tertiary creative development setting?
3. How can applying the flipped classroom teaching approach promote new ways of teaching and learning?

1.4 Overview of the research methodology

The study was constructed around an empirical research methodology. A qualitative research approach was used, broadly through the constructivist and interpretivist view of knowledge (Bryman 2012:380). The constructivist strategy can also be described as an ontological position, which implies that through the interaction between individuals, social group belongings are produced (Bryman 2012:381). The interpretivist strategy describes how important it is to understand the social world. This understanding can happen through the examination of the interpretation of that world by its participants (Bryman 2012:383). A case study research design was followed, where two student classes were used. Lecturer observations as well as student questionnaire data were collected. The unstructured data were analysed via inductive content analysis to arrive at findings.

1.5 Boundaries and limitations of the study

Continuous change or innovation is required in the classroom setting and although it can create the opportunity to progress student education (Hao & Lee 2016:150), adoption of innovative practice may be risky because of its unpredictability and unfamiliarity (Hao & Lee 2016:151). A point of concern is that the students that are used to one-directional teaching may initially be opposed to flipped classroom because the responsibility of learning is shifted towards themselves. Students might perceive the workload as too much or be unsettled during heated class debates compared to traditional teaching. Years of familiarity with one-directional teaching make it difficult for students to accept change and overcome their fears (Rotellar & Cain 2016:3). Thus, there are various issues to consider when implementing this teaching style. An alternate view is developed of what it means to be an educator or student. Although the flipped classroom approach is mostly seen in a positive light, years of traditional teaching ideas and views must be overcome in many cases (Rotellar & Cain 2016: 5).

Limitations of this study include the time schedule of the tertiary educational institute where I teach. Only a certain allotted time is allocated to the study with a fixed number of students. Thus, conclusions have been drawn from a small sample size of students within a very particular field of study. This does not reflect the population statistical average student. Furthermore, the subjective interpretation of the researcher with numerous variables could have affected the findings of this study. If data were to be interpreted by someone other than myself, the same findings cannot be guaranteed, because I was both the lecturer and the researcher in this study.

2 THEORETICAL PERSPECTIVES

2.1 Introduction

As a result of the push away from the traditional one-directional teaching methodology, various positive advantages of the flipped classroom are appearing in the literature. Some of these advantages are an increase in interactivity with students, fostering of personal accountability and responsibility, and improvement of student learning (Rotellar & Cain 2016:2).

Much of the research on the effectiveness of the flipped classroom in higher education has focused on three main areas: in the first the flipped classroom is compared to more traditional classroom settings, in the second a pre-post design is implemented where changes are compared from the beginning towards the end of the flipped classroom, and lastly student satisfaction and perception of a particular flipped classroom course is noted (McNally, Chipperfield, Dorsett, Del Fabbro, Frommolt, Goetz, Lewohl, Molineux, Pearson, Reddan, Roiko & Rung 2017:282).

In addition to these three main areas, fewer studies focused on what students preferred when comparing flipped classroom to traditional teaching (McNally *et al.* 2017:283). It is suggested that certain students were more predisposed to accepting the flipped classroom over traditional teaching; however most students preferred the flipped classroom nonetheless (McNally *et al.* 2017:283). A few studies aimed to identify the characteristics that predispose a student to preferring flipped classroom teaching as opposed to traditional teaching. Greatly driven students function better in flipped classroom teaching. Overall, these studies have evaluated particular facets of flipped classroom teaching but have not addressed students' preference of common components of the flipped classroom. A recent review of the theoretical frameworks correlating to flipped classroom teaching validated evidence to support student-centred learning on which the flipped classroom environment is centred (McNally *et al.* 2017:283). Active learning plays an important part of student-centred learning, which in turn requires students to engage in critical thinking and meaningful learning. When components of learning are shifted from the lecturer to the student, collaboration and cooperative learning are often the result since students think and engage with the content individually and with the lecturer and peers in order to internalise this content (McNally *et al.* 2017:282). Student-centred active learning was found to have constructive impacts on learning, student engagement, and information retention (McNally *et al.* 2017:284).

The theoretical framework applicable to this study, namely the constructivist perspective, will be discussed in the section to follow. Within the broader constructivist perspective, both cognitive constructivism and social constructivism will be discussed. Socio-cultural learning and the hidden curriculum will also be examined.

2.2 The constructivist perspective

The previous 50 years have shown the work of renowned theorists like Piaget and Vygotsky becoming a central part of the educational setting, especially constructivist theories. Decision-making,

collaboration, discussion of content, and negotiation with peers have thus been fostered in students by the use of constructivist theories (Barker *et al.* 2017:273). Learning occurs in different domains, namely the physical, cognitive and affective domains (Vygotsky 1978:79). From this multidimensional perspective it can be postulated that during a lecture, certain domains of learning are accessed. Not all domains might be accessed equally or receive equal time and attention (Barker *et al.* 2017:274). Constructivism is one of the most prominent pedagogical philosophies in contemporary education (Krahenbuhl 2016:98).

The foundation for teaching and learning has fundamental views on knowledge that is actively obtained by an individual (Doolittle & Tech 1999). Knowledge is an adaptive process such as reasoning and perception, and also functions to make an individual's behaviour more feasible in a specific situation (Doolittle & Tech 1999). Constructivism's assumptions are produced by the mind that creates the structure of a person's world through social interaction and personal interpretation of the world (Vrasidas 2000:7).

The constructivist perspective is a theory of human learning. Its most distinctive features may be explained as the way in which learners play an active role in the construction of their own knowledge and meaning gained from their personal encounters (Doolittle & Tech 1999). The origin of this learning theory was derived from both psychology as well as philosophy (Doolittle & Tech 1999). The constructivist theory ties in with the flipped classroom approach since students are actively involved in constructing their own knowledge, instead of the educators' one-directional impartation of knowledge.

For educators to be able to use constructivism effectively, the educator has to be aware of a student's current knowledge level (Powell & Kalina 2009:214). By knowing where students are at a certain learning point, the educator can facilitate students' creation of personal meanings for new information. According to Powell and Kalina (2009:214), constructivism is the next evolutional step in reforming current education. Constructivism is a double-edged sword affecting learning both cognitively and socially, and educators need to focus on both these aspects in order to be effective.

2.2.1 Cognitive constructivism

Cognitive constructivism involves a process whereby ideas are constructed by individual students as opposed to a group or interaction with other students, which is called social constructivism (Krahenbuhl 2016:98). It is thus essential to apply both these types since each student is able to apply his own mind as well as to stimulate the minds of peers (Powell & Kalina 2009:214; Krahenbuhl 2016:101). Learning thus takes place as a result of experience and ideas (Krahenbuhl 2016:98).

Educators need to use both psychological and strategic tools to create a constructivist environment; thus, they should employ the teaching strategies of Piaget and Vygotsky when assignments are given, or knowledge is imparted (Powell & Kalina 2009:247). Individual discovery of information by each student can be encouraged by implementing question and answer sessions when an imported subject is completed (Appel & Goldberg 1977:166). This also aids the educator in assessing each individual student's progress on the topic (Powell & Kalina 2009:247). All constructivist teaching theories have one thing in common, namely the acquisition of knowledge, understanding and experience (Powell &

Kalina 2009:248). In order to create a constructivist classroom, a common interaction is required, such as a debate on a certain topic. In response to the debate minds are stimulated and learning can occur when students are challenged but still feel comfortable and open to the particular topic (Powell & Kalina 2009:247). For example, if students are required to complete an essay, they should have the opportunity to select their own topic so that they can relate their own experiences to current learning and knowledge. Knowledge is the ability to accept, reason and acquire information. Following this is the ability to retrieve such information, which shows that personal meaning was ascribed to the information and that it will remain in the memory until the need to access such knowledge arises (Powell & Kalina 2009:248).

2.2.2 Social constructivism

Social constructivist theories centre on the interdependence of social and individual practices in the production of knowledge. Drawing from Piagetian and Vygotskian theories, mechanisms are hypothesised to account for learning from this perspective (Palincsar 1998:345).

Vygotsky's research sought to prove that social interaction among individuals of different experience or knowledge levels advances the knowledge level of the less experienced individuals in a community (Vygotsky 1978:80). Students who work according to Vygotsky's theory actively generate knowledge through their experience and interaction (Vanderburg 2006:375). These experiences are further used to assign meaning to ideas and items, which results in life-long learning. Vygotsky's theories are not only based on cognitive development using oral language alone, but through non-verbal social interactions as well (Vygotsky 1978:81; Vanderburg 2006:375).

By incorporating social interaction learners can benefit from shared group knowledge. Social constructivism is an extremely efficient means of schooling. Piaget developed social constructivism theory after cognitive constructivism had already been established (Powell & Kalina 2009:243). Vygotsky believed that social interaction plays a fundamental part in learning. Social constructivism is grounded on the communal interactions alongside an individual's critical thinking process. All of Vygotsky's theories, such as cognitive dialogue, the zone of proximal development, social interaction, culture and inner speech are cooperatively concerned with the development of social constructivism. By understanding these theories, a classroom where communal interaction is employed will result in a highly effective environment (Powell & Kalina 2009:243).

Many theorists and educators support Vygotsky's theory, which proposes that youngsters will more often than not learn most easily when other peers are involved. For example, cognitive constructivism is employed first during an assignment where students may learn a concept on their own, where after social constructivism is employed by the teacher and peers adding to this gained knowledge based on the initial assignment information (Powell & Kalina 2009:244). Vygotsky also postulated that students will learn more effectively if a support structure is established by other peers. For example, when a student learns to count beans, he or she may miss a number if counting alone, but if the teacher assists and points to each object, a unique internalisation is achieved by the student, which aids in the learning process (Powell & Kalina 2009:244). If a student is asked to perform a difficult task, it is inevitably difficult to perform alone but with the aided support structure given they will be

able to complete it and internalise the knowledge. Cooperative learning is thus essential in creating a social constructivist classroom; therefore, students should be allowed to interact with the educator as well as with their peers. When tasks or assignments are completed in a group, the knowledge is internalised for all group members but at a different rate according to their individual experiences (Vanderburg 2006:377). Vygotsky understood that internalisation occurs more efficiently when social interaction is made part of the educational setting (Powell & Kalina 2009:244). Vygotsky strongly supports the view that communal interaction and cultural stimuli have an enormous influence on a student and how knowledge is gained (Powell & Kalina 2009:245).

2.3 Socio-cultural learning

In addition to constructivist theory, socio-cultural learning theories were employed in this study. Socio-cultural learning is learner-centred and takes a cooperative approach to learning (Wang 2007:149).

Vygotsky's (1978:83) theories consider many different aspects related to acquiring knowledge. These include social and cultural facets in cognition and learning. In a socially and culturally structured world, relationships among people are derived from learning, thinking and knowing (Wang 2007:149). This social interaction happens in social networks that include schools and work, and in this instance in peer classroom groups (Wang 2007:151). Socio-cultural theories are effective in that they create the opportunity for more academically capable students to assist those students who are not on the same academic level (Wang 2007:152). This learning perspective allow learners to engage in class activities and to interact with fellow learners in solving problems and completing tasks. This allows learners to think about and discuss their thought processes and explore a range of possible answers (Wang 2007:150). The role of the teacher is then merely to act as a motivator and to encourage the students' critical thinking (Wang 2007:150). Through this process both the teacher and the student participate in the learning process and then a sense of community is created, thus creating knowledge from the community rather than from an individual (Wang 2007:152).

A comparison of Freire and Greene's notion of social justice in education includes a focus on the oppressed, to educate such individuals towards finding their voice and ultimately changing their circumstances (Allsup 2003:155; Palmer *et al.* 2001:115). All individuals in this system, the educator as well as the student, will work together for the betterment of the social system or community. Both Freire and Greene understand the importance of social interaction, and the knowledge gain through both the educator as well as the student (Palmer *et al.* 2001:116). According to Greene (2003:160), the modern scientific method depersonalises, isolates and erodes communities. These communities are imperative to shaping cultural experiences and education. In a sense Freire's notion on un-completeness of individuals and the striving to be complete ties in with Greene's belief that educators should have an inquisitive nature. An inquisitive nature in itself becomes an endeavour to be more knowledgeable and ultimately more complete or better (Allsup 2003:162; Palmer *et al.* 2001:117).

According to Freire, as educators we hope for communication with the students that is safe, respectful, and involves overall communal participation (Adams, Bell & Griffin 2007:15). This response is aspired to even when difficult topics that are likely to elicit an emotional response are dealt with (Adams *et al.*

2007:16). It is the aim of the educator to help students develop credible sources of information, honest personal reflection, ease of interrogating prior beliefs and convictions, and sustained critical thinking. This critical thinking will endorse their social roles and responsibilities as individuals that are part of a community (Adams *et al*. 2007:17). Education can thus be used to promote positive social change. Knowledge in this sense can be used as a form of social control to promote positive social change as mentioned, or when employed incorrectly elicit the opposite response (Adams *et al*. 2007:18).

2.4 The hidden curriculum

Additional to the flipped classroom, beyond the course content and daily lessons, is a concept called the hidden curriculum (Casey 2017:367). During educational practice the main aim is to transfer information to students. During the transfer of knowledge, the hidden curriculum can be seen and investigated (Onatra & Peña 2003:159). From this, the critical role of educators becomes evident, since in a traditional setting most of the interaction is between them and their students. It can be seen as an unconscious dialogue between the educator and students, directing the educators' intentions to students (Onatra & Peña 2003:160).

This hidden curriculum can be summarised into three main aspects: the lecturer's approach as the owner of knowledge, the lecturer's approach to authority in the classroom, and the lecturer's ability to evaluate acceptance and denial (Onatra & Peña 2003:160). Students are therefore influenced by the objective as well as the subjective views of their educators. Culture defines our view as citizens and our communal views. All of the individual citizens come together to form communal views of what is acceptable. Thus, individual citizens (which includes students) are the starting point of transferring the ideas of the community to these students. As a single individual we too have likes, desires and viewpoints that unconsciously cultivate these traits in our students (Onatra & Peña 2003:160).

The hidden curriculum is made up of unplanned and recognised beliefs, views being unconsciously taught to students via the process of teaching. This hidden curriculum teaches students about social relationships and responsibilities as they are mimicked in the classroom on a smaller scale. Apart from course work this type of personality schooling is being imparted to each student be it via the educator or fellow classmates (Casey 2017:367).

3 CONTEXTUALISING THE STUDY

3.1 Introduction

The modern arts curriculum should be locally applicable but at the same time be able to explore a variety of intercultural diversity issues as a foundation for creativity and cultural appreciation. The curriculum should also recognise the threats and opportunities of globalisation (Delacruz, Arnold, Kuo & Parsons 2009:215). In modern times culture is not limited to tradition, but individuals or artists have an immense source of information as well as inspiration available to them. It is thus the responsibility of each educator or artist to examine vast amounts of information, condense it and employ it in a valuable manner. Education could be seen as a space where the analysis of this information, and sharing of knowledge and ideas take place in such a manner as to contribute to society (Delacruz *et al.* 2009:216).

Flipped classroom is a functional, student-focused instruction model that is intended to advance scholars' performance (Yilmaz 2017:94). Lecturers need to utilise activities and solve problems before they continue with additional learning content. During flipped classroom teaching, students can complete tasks outside the classroom environment and class time is allocated to establishing meaningful contact with the lecturer and peers (Yilmaz 2017:94). If questions need to be asked they can be discussed in order for the teacher to focus on students' individual needs. The time taken when questions are asked and answered during the first couple of minutes when flipped classroom is employed is much shorter than time taken during traditional teaching (Yilmaz 2017:94). The reason for this shorter time is that the assignment content is made available before class and certain aspects are critically engaged with before the class even starts. Next, South African challenges and context applicable to this study will be discussed.

3.2 The South African context

Colonialism challenges the practicality and relevance of education in African society by perpetuating an arrangement that maintains colonialism. Political freedom is frequently advertised as a break with the colonial past, hence the term 'postcolonial', but links and gaps still exist between colonial and postcolonial. According to Abdi, Puplampu and Sefa Dei (2006:4), the potential of development is still to be achieved in Africa, because not much consideration has been given to structure, organisation, and social processes. It is therefore not surprising that several African nations remain occupants of the lowest sectors of the United Nations Development Program's Human Development Index. This condition is not likely to improve as a result of globalisation continuing the historical process of imperial control. A possible solution to this is implementing a non-domineering framework to guarantee Africa's cultural and educational requirements are re-formed in this era of globalisation (Abdi *et al*. 2006:4).

The psychological interest of the colonisation of Africa is the most significant; it has cleared the way for all other mechanisms of the colonial agenda. Education in this context was employed to psychologically oppress the native population when it should have been used as a communal development tool (Abdi *et al*. 2006:16).

Before and after the fall of colonialism, education and indigenous knowledge remained important to Africans (Abdi *et al*. 2006:18), if not for its utilitarian or economic resolutions, but for its holistic provisions to the sociocultural and other community-based developments. It would have been expected that, after the collapse, Africans would move away from the colonial norms of education, but instead they sustained the colonial programme of education (Abdi *et al*. 2006:19). This might have led to the replacement of the colonial elite with a native population elite, catering for the whole community. Due to the fast urbanisation of parts of Africa, educational admissions increased markedly in the first two decades of independence. It can be argued that notwithstanding the educational difficulties that were faced by Africa's colonised past, African education, both quantitatively and qualitatively, was showing rapid evolution into the 1980s (Abdi *et al*. 2006:19).

Africa's developmental afflictions can be outlined in a cascade of proceedings starting with the destruction of education, the warped system of development and the continuation by the African postcolonial elite, reversing any educational and developmental improvements that had been achieved during the post-independence period (Abdi *et al*. 2006:4). To correct this situation, an option would be to use indigenous knowledge and ways of education that aim at improving the population's needs, instead of those of the current African elite. This type of education can further be complemented by selective 'good' influences from other global cultures. Processes of globalisation, which are usually executed from a stance of dominance, are not inevitably impenetrable. As such, with some amount of indigenous educational and cultural development, this globalising landscape might be penetrated from below to affect change (Abdi *et al*. 2006:27).

One of the main aims in visual art education is to enhance student creativity (Van de Kamp *et al.* 2015:47). The importance and usefulness of visual arts education have been debated for a few decades. With the current advances in technology, visual literacy is fast becoming an essential skill (Kedves s.a.:20). Visual arts schooling nurtures the growth of creative problem-solving and visual literacy. Visual arts teaches the use of visual communication, which is increasingly present in the 21st century (Kedves s.a.:20).

At present, the main debate relating to South African higher education is the issue of 'free' higher education (Wangenge-Ouma 2012:831). Unlike most African countries, South Africa has established means of support and funding to students (Wangenge-Ouma 2012:831). As the situation stands currently, most students are demanding free tuition even when the country has financial aid in place for higher education students (Wangenge-Ouma 2012:831). Student financial assistance is increasing at a slower rate than the need for financial assistance and thus insufficient funds are available to meet the needs of all qualifying and deserving students (Wangenge-Ouma 2012:842).

With this context in mind, this study was conducted in a South African higher education setting to provide additional feedback on the use of the flipped classroom model in a creative environment. The research design and methodology that were utilised are discussed in the following chapter.

4 RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

For this study two different classroom student groups, enrolled for the same module, were used. In the first class there were 41 students studying in the fields of digital and interior design, and in the second class there were 27 students studying in the field of graphic design. The majority of these students were in their first year at the institution. The module that was taught is called Ideation and Visualisation and its aim is to provide students with fundamental skills to capture their ideas and concepts visually. Students were introduced to the elements and basic principles of drawing and sketching. During the year they developed their individual visual representations of their thought processes and observations.

4.2 Research approach and paradigm

The research approach and paradigm are the broad scope of the research and the approach taken to gain knowledge. This study employed an interpretive approach. One of the strengths of qualitative research is the interpretive approach to knowledge and viewing data and knowledge as socially constructed, as well as the influences of researchers and participants' positionality (Bryman 2012:290).

The interpretive approach derives knowledge by means of lived experiences of individuals or groups. Interpretive methods are thus reliant on an investigator's theoretical position rather than on their methodological positioning (Walther 2014:452).

One can employ social constructivism as part of one's research process to examine interpretations in the context of a larger communal, social or cultural framework, by questioning one's own assumption when interpreting the data (Walther 2014:459).

4.3 Design of the study

A case study can be defined as an intensive analysis of a single case. Thus this type of study is concerned with the intricacy and knowledge gathered from the single case in question (Bryman 2012:66). The most common use of the word 'case' connects this word with a location, group, community or organisation. A case study design often favours qualitative research methods such as participant observation and unstructured interviewing, but cannot be exclusively classified as such (Bryman 2012:67). A case study is often a rigorous investigation of a single case, which also involves a theoretical analysis (Bryman 2012:70).

In both of the two classrooms the flipped classroom approach was employed, and identical assignments were given to both groups of students. Both classes were subdivided into smaller groups, with approximately three to five students per small group. Table 4.1 below illustrates the role that I played as opposed to role of the student when the flipped teaching method was employed in the classroom.

Table 4.1: The role of the lecturer versus the role of the student for the flipped teaching method

	Flipped Classroom Approach
Teaching approach	• All students are given the same assignment • Flipped classroom approach is employed • Group work
Role that the students will be part of	• Receive the assignment before the class • Assignment is launched by incorporating digital media (videos, images) • Open for own interpretation • Group discussions • Presentations and reflections among the class members • Peer-to-peer reviews and interaction within group • Group reflections and feedback • All group members are involved • Learn from one another • Socialisation takes place
Role that the lecturer will play	• The lecturer becomes the facilitator • Encourages students to find their own solutions to the challenges and project • Many possibilities are introduced through dialogues and discussions • Dictates an idea or solution • Teaches through thought-provoking questions and allowing exploration and reflection

The duration of each class contact session was 50 minutes and there were two sessions per week. These contact sessions took place in a classroom setting and the applied project ran over four weeks. A more detailed overview is provided in Table 4.2.

Table 4.2: Time schedule

Week 1	Week 2	Week 3	Week 4
Session 1: • Students were given the assignment a week prior to commencement of the task.	**Session 1:** • Launched assignment • Divided into groups • Scouted campus to spark ideas and start with the process • Started with group discussions	**Session 1:** • Groups worked on task in class • Group discussions • Consulted with lecturer	**Session 1:** • Each group presented their work to the class.
	Session 2: • Did individual research on chosen topic. • Worked in groups on assignment. • Lecturer consulted with each group, gave feedback and advise	**Session 2:** • Worked in groups on assignment • Started to finalise assignment • Lecturer consulted with each group, gave feedback and advise	**Session 2:** • Class gave feedback and reflected • Submitted final assignment • Submitted the completed questionnaire

The project brief given to the two classes entailed the following assignment: Design a prototype device or initiative to help with the water crisis in Cape Town. At this stage, students were comfortable with prototype designs, because they had already performed similar tasks as part of their module outcome earlier in the semester.

The flipped classroom had a set of design principles that were implemented to ensure that the course content was properly planned and executed (Rotellar & Cain 2016:10). The course content of the assignment was given to students to review prior to classroom attendance. Once the groups were divided, I consulted with each group to assess student understanding of the topic. I provided clearly defined and well-structured guidance. Sufficient time was provided to complete the assignment. I offered assistance in the classroom to build social and communal bonds among the groups as well as with me and I gave thorough feedback to each of the groups during the project as well as on completion of the assignment. Information technologies were easily accessible because all the students that participated in the assignment had access to computers as well as internet on campus.

4.3.1 Research design

The following steps explain exactly how the assignment was launched, how students functioned and the final execution thereof:

4.3.1.1 Step 1:

- Students divided into groups of approximately three to five persons.
- They were instructed to group with classmates who had the same birthday month as theirs. This was done to make the division of the groups random.
- They had to give their group a name.

4.3.1.2 Step 2:

- Each student was given the task to complete research on one of the following topics, and each group member was allocated a single topic:
  - Statistics on water shortages in South Africa (This could include news articles as well.)
  - What is the process to follow to purify water?
  - How can water be saved (including already existing devices and approaches)?
  - How have other countries solved water shortages?
  - What is desalination, and is this a feasible option?

  This encouraged peer-to-peer learning as a result of each group member gaining specific knowledge by themselves and consequently sharing this knowledge with other group members in order to facilitate knowledge transfer.

4.3.1.3 Step 3:

- The groups were given the opportunity to walk around campus and draw 10 different objects that might have been used to construct their prototype. Examples of these objects that I provided to students are a tap, a chair, a toilet roll, a can, a power plug, a door knob, a light switch, a computer, tar, a car, and a tree. It could be anything. The students were told that that this was the start of their creative exploration.

4.3.1.4 Step 4:

- Students were further instructed to divide themselves into different roles that were allocated to each of the groups. These essential parts were the following:
  - The photographer, who was instructed to take pictures of 10 different objects, each object from three different angles. These photos were also printed;
  - The process thinker, who had to come up with the best possible solution for the group's particular prototype;
  - The drawing artist, who had to sketch five rough A5 prototypes;
  - The final prototype illustrator, who had to complete full-colour drawings of the final prototype, presented in a professional manner;
  - The scribe, who was instructed to document each step carefully, and comment on the different roles and execution thereof. What had the students learned from one another? What were the group dynamics like?

4.3.1.5 Step 5:

- In this step the students continued to develop the final prototype. I provided the following rough ideas to guide students in a certain direction of thinking:
  - Is the prototype something that is implemented in homes?
  - Will the prototype be implemented or built into a dam?
  - Will it be a new mechanism to engineer or fabricate reservoirs?
  - Will the prototype collect water and store it safely?
  - Will it be something that purifies water for re-use purposes?

4.3.1.6 Step 6:

- In class I encouraged the students to harness a positive and creative group dynamic during the assignment.
- Students were instructed to submit a professional document, stipulating all research topics utilised during the development of the prototype.
- Furthermore, all drawings completed had to be professionally presented, and compiled in one document for submission.
- Each individual group presented their prototype, including all photos and research used during development.

- After presentation of the assignment, non-presenting groups provided peer-to-peer feedback to the presenting group, which also included a question and answer session.
- After presentation had been completed, each student anonymously completed a questionnaire which was submitted with the assignment.

4.4 Sample selection and data collection

By using the flipped classroom approach, the assignment content was made available before class, in order for students to be able to do research beforehand. This also provided students with the opportunity to become familiar with the assignment content. I did not have two class sessions on the same day, but both classes were offered in the same week, where the same content was always presented. The dates for the project time lapse are provided below.

4.4.1 Class 1

I introduced the assignment on Thursday, 3 May during a class session and the students only started the assignment the following week. The following week, Monday 7 May, I discussed the assignment brief in depth and also divided the students into groups. On this day the students started with their assignments. They held group discussions and consulted with me. On Monday, 14 May the students worked on their assignments in their groups in class and they consulted me. Then they started to finalise their assignment. On Monday, 21 May each group presented their work to the class, and the class gave feedback. There were class discussions and reflections. Students also submitted their final assignment and their completed questionnaire.

4.4.2 Class 2

I introduced the assignment on Wednesday, 2 May during a class session and the students only started the assignment the following week. The following week, Wednesday 9 May, I discussed the assignment brief in depth and also divided the students into groups. On this day the students started with their assignments, held group discussions and consulted with me. On Wednesday, 16 May the students worked in their groups on their assignments in class and they consulted me. Then they started to finalise their assignment. On Wednesday, 23 May each group presented their work to the class, and the class gave feedback. There were class discussions and reflections. Students also submitted their final assignment and their completed questionnaire.

Class time was allocated to complete assignments to avoid additional workload on students. Assignments were applicable to their course of study, so students gained meaningful knowledge by completing these assignments. The content and outcome of the proposed assignment was not the main focus, rather emphasis was placed on the flipped classroom learning approaches applied in the classrooms. The assignment did not disrupt the regulations of the set lesson plan or the prerequisite outcomes of the module. After completion of the assignments, each student was given a self-

completion questionnaire to evaluate their experience in the class. Students evaluated different facets of their experience.

4.5 Capturing data

I kept the signed questionnaires in my study at my home. Only I had access to the data. The information that was shared during this study and that could possibly identify the students as participants is protected. This is done through keeping the identity of the participants anonymous. No personal information was entered on the questionnaire. Questions were answered without my knowing which questionnaire belonged to which student. The questions that were answered were used in the study as data to establish advantages and disadvantages of the flipped classroom teaching style. This information was stored on a password protected laptop until the study was complete. On completion of the study it will be deleted, and paper copies destroyed.

The following data collection techniques were employed in this study: structured observation, participant observation, content analysis and questionnaires (Mouton 2001:190).

4.5.1 Structured observation

Structured observation is a technique for methodically observing the actions and behaviour of students in terms of a set list of categories (Bryman 2012:272). The researcher uses a specific set of rules to record observations for the chosen categories. Each participant in the study will be observed for a period of time, using the same predetermined categories and rules. The rules or categories are contained in an observation schedule which also bears similarities to the structured interview with predetermined questions (Bryman 2012:272). Behaviour is thus observed directly instead of inferred data from the questionnaires (Bryman 2012:270). A disadvantage of structured data collection is the propensity for structured observation to produce a great deal of fragmented data. These fragmented data are difficult to piece together to form a coherent overall picture (Bryman 2012:284).

4.5.2 Participant observation

This data collection technique is mostly associated with qualitative research. It involves the prolonged observation of the researcher in a certain social environment, where the researcher observes the behaviour of the social group. Furthermore, the researcher will seek to provoke certain responses from the social group to ascertain how they contribute to the specific social setting (Bryman 2012:273). The following are examples of how these behavioural responses could be elicited from the researcher as well as individuals who are part of the social group (Bryman 2012:274):

Lecturer

- Asking questions addressed to the group;
- Asking questions addressed to an individual;
- Responding to questions asked by members of the group;
- Responding to comments by members of the group;

- Discussing topic;
- Making arrangements;
- Silence.

Student(s)

- Asking questions;
- Responding to questions from lecturer;
- Responding to comments from lecturer;
- Responding to questions from another student;
- Responding to comments from another student;
- Talking about arrangements.

4.5.3 The self-completion questionnaire

This is a data collection technique where individuals respond and complete a questionnaire by themselves (Bryman 2012:232). The self-completion questionnaire is a form that is handed out to participants by the researcher, completed by participants, and collected by the researcher afterwards. When using a self-completion questionnaire in a study, easy to follow questions are necessary since there is no interviewer or facilitator present (Bryman 2012:232).

4.6 Ethical considerations

Approval for my study was granted by both Stellenbosch University and the institution at which I teach. I designed a consent form according to the Stellenbosch University guidelines and each participant was given this form together with a thorough explanation of the study. I read the consent form to the class to ensure that all the students were well informed when signing the document. The consent form was signed by each of the students to ensure anonymity and their participation in the study. The students were given time in class to sign the consent form. The assignment was compulsory for all students seeing that it formed part of their class activities for their prescribed module. However, the students could choose whether they wanted their work and discussions to be included in the study or not. If some of the students decided not to be part of the study, they were not given a questionnaire to complete. The participants could withdraw their consent at any time and discontinue participation without penalty. However, none of the students decided to exclude their questionnaires from the study. An example of a consent form can be viewed in Addendum A.

4.7 Data analysis

A qualitative investigation was performed on student engagement in the flipped classroom (Steen-Utheim & Foldnes 2017). This study revealed seven categories that students emphasised during their engagement with the teacher as well as with fellow students:

1. Commitment to peers

2. Being recognised
3. Feeling safe
4. Instructor relationship
5. Physical learning environment
6. Learning with peers
7. Using videos to learn new content

These categories were used to generate questions that were employed in my own study. They served as a broad inquiry to elicit a response from students in the flipped classroom environment. The students' response was analysed via the reflective data analysis methodology.

A critical reflective approach relies on data that was acquired experimentally as well as by self-reflection, in a process of interaction. This reflection of data acquired is used to analyse structures and ways of thinking. A big advantage of reflective analysis is that different ideas and viewpoints can be discovered reflectively from a great variety of positions (Osmond & Darlington 2005:3).

Osmond and Darlington (2005:3) note that the following questions can be employed in self-reflection: Did the interaction transpire in a manner predicted by the researcher or did they occur differently from the expected outcome? What needs to be changed about my postulations, theory, actions or interpretations as a result of these outcomes?

The analysis of the self-completion questionnaire data was used to gain insights into the advantages as well as the disadvantages of the flipped classroom teaching. The following questions were asked:

1. Do you feel that you have learned something from your peers? What stood out for you from the learning experience?
2. How would you describe lecturer engagement and interaction during class?
3. Do you feel you were recognised as part of the team during your assignment by both your peers as well as the lecturer? Elaborate on the active role you played during the assignment. Were you a valuable asset to your team?
4. How would you describe your relationship with the lecturer during this assignment?
5. How did you experience your physical learning environment and content presented?

4.7.1 Content analysis

Content analysis is a procedure for drawing conclusions by objectively and methodically pinpointing specified characteristics of the collected data after systematically working through the data (Bryman 2012:289). Content analysis was done on all data sets that were collected: lecturers' notes, observations, project assessments, as well as self-completion questionnaires.

Qualitative content analysis is one of the methods currently employed to structured and unstructured data. This type of analysis provides means of systematically analysing data (Elo, Kääriäinen, Kanste, Pölkki, Utriainen & Kyngäs 2014:1); in this way unstructured large quantities of data can be reduced to concepts of categories of meaning (Elo *et al.* 2014:1).

4.7.2 Inductive content analysis

Qualitative content analysis can be employed in two different ways, whether inductively or deductively, both involving preparation, structuring and reporting findings (Elo *et al.* 2014:2). During this study the preparation phase was the collection of lecturer observation and student questionnaire data. When employing inductive content analysis the unstructured data is organised by dividing it into structured categories (Thomas 2003:3; Elo *et al.* 2014:2). It should be noted that the categories and findings of the results are shaped by the researcher's own assumptions and experiences especially employing the lecturer observation data. This is true to a lesser extent but still valid for the student questionnaire data, which is less reliant on my own experiences and shifted towards student experiences (Thomas 2003:4).

4.8 Validity and trustworthiness

It is a unique task to review literature and it involves evaluating the validity of the findings and conclusions in a study (Bryman 2012:109). What needs to be considered is how these discoveries relate to one another. This will require the reviewer to reflect on their own knowledge that stemmed from their own experiences. The reviewer needs to think about the fundamental and methodological issues and not merely utilise replicable procedures (Bryman 2012:109).

The purpose of establishing validity and trustworthiness of data is to ensure that findings can be considered as serious, worthy of note (Elo *et al.* 2014:3). The aforementioned is especially important if inductive content analysis is used, since raw data are categorised without a theory-based organisation matrix (Elo *et al.* 2014:3). The validity and trustworthiness of collected data may be assessed in different ways.

The acceptance and trustworthiness of qualitative research has been questioned by many critics. However, there are four main criteria that can be used in order to prove trustworthiness of a study: credibility, transferability, dependability and confirmability (Shenton 2004:62). Shenton (2004:64) emphasises that a true picture of the study or phenomenon should be presented. In this current study the raw data are provided. Furthermore, substantial detail on how the study was conducted as well as the context within which it was done is given in the methodology section of this thesis. The possibility of transferability to another situation to which this research can be applied is thus addressed. Dependability is always difficult in a qualitative study; nonetheless enough information and context have been given to assist other researchers in possible attempts to replicate the study (Shenton 2004:64). To achieve confirmability of this study, data were represented visually to make it easy to assess trends and gain a visual impression of the data to reduce any bias that might arise from textual data alone.

5 DATA AND DISCUSSION

5.1 Introduction

The purpose of this study was to provide a reflection on the use of the flipped classroom approach. A case study of an in-depth investigation of the flipped classroom was conducted within a classroom setting and the application and results of a flipped classroom in a creative tertiary educational context were explored. Both lecturer feedback and student questionnaire data were collected from two separate classrooms of students. In the sections that follow, lecturer observations are listed, after which student questionnaire data are provided[1]. An inductive content analysis approach was followed to assign structured common categories to the collected data. These categories are listed and each is discussed.

5.2 Lecturer feedback and observation from each group's project presentation

Both classrooms were given the same questionnaire after completion of the assignment.

5.2.1 Class 1

5.2.1.1 Group 1 (6 students)

All the students in this group were well prepared for the project presentation. Students were able to answer all their peers' questions comprehensively. Their non-presenting peers were positive and engaged with overall good feedback to their presenting peers. My subjective view is that all group members performed their tasks well and that the workload was distributed evenly among group members. It was evident that this group had competitive, strong members who encouraged one another to accomplish more than what they could have done individually. This was done by the groups' peers motivating and endorsing one another during the assignment, mainly because the grade was dependent on all group members and not on one individual alone. The aforementioned was evident in this group since they scored one of the highest grades.

5.2.1.2 Group 2 (5 students)

This group clearly indicated the role allocation of each member in the group, and as a result the workload was fairly divided among them. During the presentation the presenting students kept the class engaged. The non-presenting peer feedback and suggestions given were insightful, and it was evident that the presenting students were offered additional knowledge they had not yet considered. The questions that were directed to the presenting group were challenging and gave them the opportunity to think on their feet in order to provide quick meaningful answers. The non-presenting peers were interested in their idea, and it seemed as if they also gained knowledge from this particular group's presentation. The whole group

[1] Not all questionnaire data is listed to reduce the length and improve the flow of chapter 5. Common themes and answers were rewritten in the lecturer's own reflection.

participated in the discussion and feedback. It was evident that they learned from one another, not just with regard to the research but also regarding their technical skills.

5.2.1.3 Group 3 (6 students)

In this group there were undeniably strong leaders that could be identified during the presentation of their project. Some of the group members were not as confident about presenting as others, so the more confident students took the lead in the presentation. In my opinion these students definitely relied on their group mates for a successful presentation. This could be seen as one example where strong individuals increased the overall grade of the group. However, it can also be a disadvantage when academically challenged students rely on stronger individuals rather than participating in their own capacity as a group member. The students clearly defined the role of each group member. By structuring group roles, the aforementioned disadvantage of academically challenged individuals not participating in the group activities is decreased significantly since members are forced to contribute, when they are given a specific role. The class feedback was energetic, and the presenting group engaged with the class. The non-presenting groups were interested in the presenting group's prototype and also learned a great deal from the class suggestions and feedback given. This is another example where both parties imparted knowledge and offered suggestions to one another instead of just having unidirectional teacher-to-individual feedback.

5.2.1.4 Group 4 (4 students)

In my opinion, not all of the group members were equally involved, although the workload was equally divided among them. The class was very intrigued by the presenting group's design. The non-presenting peers asked many questions, but the presenting group was confident and sufficiently prepared to answer all the questions. This demonstrated that they had researched their project and had considered all the variables. The non-presenting groups and the presenting group greatly enjoyed the peer feedback and questions.

5.2.1.5 Group 5 (6 students)

This group was well prepared for their presentation. One of the group members had excellent technical skills and he was able to produce interesting videos and digital demonstrations of their prototype. This effort from a single individual enabled the group as a whole to stand out from the rest. The rest of the group members definitely gained much knowledge from this specific highly skilled group member. The skilled student also took the lead and answered many questions, although it was evident that the rest of the presenting group members also had had input in the design idea. Their idea was well thought through and developed. The non-presenting groups really enjoyed the presentation and appreciated all the effort that this group put in. Not only was the class intrigued by the design, they also learned from the group at a technical level. This group effort also showed knowledge transfer between peers, and not only from the lecturer.

5.2.1.6 Group 6 (3 students)

This group did not attend all the classes or briefing sessions, nor did they consult with the lecturer in the specific allotted times. This was evident in their work, which was a last-minute attempt to complete the assignment. Nonetheless, the students in this group still managed to complete the project and the presentation. Their idea needed refinement since it was obvious that was not properly prepared. The non-presenting class peers gave extensive advice and suggestions and helped them to finalise and conceptualise their project. This group especially learned a great deal from the class feedback, and it was helpful knowledge gained in order to improve their assignment.

5.2.1.7 Group 7 (5 students)

This group emphasised the roles that each of them fulfilled, so they structured and imparted knowledge in a way that benefitted all of them. Although one of the group members did the majority of the presentation it was evident that the rest of the group was completely involved and up to date with the assignment. However, they over-complicated their idea and it was too far-fetched. At first the non-presenting groups did not understand their idea and doubted it, so it was evident that the presenting group had not done thorough research and planning. The non-presenting groups' feedback was valuable, and they helped their presenting peers to brainstorm and develop their concept further. This was definitely a big learning curve for the whole group, and they thanked the class for the input.

5.2.1.8 Group 8 (6 students)

The workload was equally divided in the group. Only one of the six students did the presentation. Their presentation was short and generic. The non-presenting groups had many questions, because the presenting group did not explain their prototype in detail. A great deal of advice and suggestions came from the peer feedback. The questions and suggestions that the class offered made the presenting group rethink and reconsidered their prototype idea.

5.2.2 Class 2

5.2.2.1 Group 1 (6 students)

Every student in the group put in a great deal of effort in the work and the delivery thereof. Their idea and design were very creative, and every member contributed equally to the group dynamic. The non-presenting groups fully engaged with the presenting group's presentation and were intrigued with their design. The non-presenting peers were able to ask relevant questions. All the group members answered these questions and were very involved. Although the whole group was involved in the discussions there was still a distinctive leader who took the lead and directed the discussions. This group was well prepared and all of them worked very hard; to achieve good grades seemed to be their top priority. They focused on their individual skillset; accordingly, the best person to complete each task was selected for an individual role. This group enjoyed the task as well as the interaction with one another.

5.2.2.2 Group 2 (5 students)

This group clearly defined each group member's role from the start. The group worked hard and harnessed a positive and creative group dynamic. They did thorough research and generated ideas to come up with the best possible solution for their prototype design. Everyone took part in the presentation and was excited and positive about their design. The presenting group had to explain their idea several times to non-presenting peers, because it was very intricate, and the group did not consider all the variables. The non-presenting groups gave relevant feedback and made valuable suggestions in the reflection session. Bidirectional knowledge was gained and imparted by presenting as well as non-presenting groups.

5.2.2.3 Group 3 (5 students)

In this group the workload was not equally divided. They also did not finalise their prototype idea. Only one of the members knew what the design was and what the idea consisted of. The presentation was not planned or rehearsed beforehand. It was evident that the students had not done sufficient research on their topic. Not all of the group members were sure of their role within the group dynamic. This showed a poor group dynamic. Because of the level of unpreparedness, the students looked stressed. The non-presenting groups gave good feedback and appropriate criticism.

5.2.2.4 Group 4 (5 students)

Students started out with good research and appeared to be confident. It was evident that everyone played an equal important role in the group. The group members got along very well and enjoyed one another's company. Besides collaborating on the assignment, it seemed that they had also become good friends. The socialisation and the interaction had become more important than the assignment itself. In this group they also realised and focused on one another's strong suits. Their idea was not as strong as those of some other groups, and the delivery thereof poor, but they enjoyed the project and one another's input. They learned valuable people skills in addition to the prescribed content. The non-presenting groups did not fully understand their idea, so the presenting students had to explain it several times. The non-presenting groups gave feedback and advice. They also commented on the unpreparedness of the presenting group.

5.2.2.5 Group 5 (6 students)

The ideas of this group were excellent. They consulted with the lecturer a great deal. They developed their idea to its full potential. Two of the group members did not do their part, and as a result left the initial group. The remaining four students approached the lecturer and asked if they could continue their project without the other two students. The remaining four group members also felt that the group members who had left did not deserve the same marks as they received. Due to the leaving group members' incompetence, the whole group's presentation and project lacked certain components. This can be attributed to the workload that the remaining students had to complete. The group's idea was not feasible, and they did

not consider all the requirements. The non-presenting groups gave good feedback and suggestions and were able to help them to complete the necessary requirements.

5.3 Student questionnaire feedback

Both classrooms were given the same questionnaire after completion of the assignment. Data, including data from all groups in both classes, were subdivided and grouped according to questionnaire questions.

5.3.1 Do you feel that you have learned something from your peers? What stood out for you from the learning experience?

From Class 1, Group 1, student comments included: “We learned that every member of the group has a different approach when it comes to doing the task. A little empathy goes a long way in group work, to play on one another’s strengths motivated members positively and it has improved morale.” “Each of the group members had a different approach to problem solving, and by viewing these diverse ways gave inspiration to other students.” Another student mentioned that it was important to give and receive constructive criticism. Some group members felt that not all their peers were able to stick to deadlines and take criticism well.

In Class 1, Group 2, one student mentioned that group members really brought new ideas to the table with interesting research. Another student commented, “What stood out was how different ideas can be combined into one concept.” Another student in the group perceived that it was good to work with students that one has not yet worked with before. What stood out for another student from the learning experience was the way in which one can present different ways to show work, as well as the way each member took responsibility for their part. Another student mentioned, “It is easier to finish the project when the work is divided, and each member had a certain responsibility.”

In Class 1, Group 3, a student felt that he or she had learned something from their peers because of the diverse thought processes from each group member. They commented about innovative thinking in the group. A student commented that they had learned that there is a very small difference between a leader and the person appointed to compile the work; they had to make sure that nobody turned into the leader. One student mentioned that every group member came up with ideas.

In Class 1, Group 4, students commented about strong and weak attributes of each member, which were respected in the group dynamic. A student mentioned, “We learned proper team work skills. Each group member had great ideas and concepts that everyone could form part of.” One student mentioned that they appreciated how cooperative and informative their group was.

Group members from Class 1, Group 5 mentioned that they had learned from their peers that by collaborating and sharing ideas they were able to gather knowledge on alternative perspectives. One of the students mentioned that they loved how wide their group members’ knowledge was; when someone brought up an idea, the rest of the group was able to understand and explain the technicality thereof. Another student said that it was the first time that they did group work and that it really makes

life easier when the workload is divided. A student mentioned that there had been positive group communication as well as an understanding of what each group member had to do.

In Class 1, Group 6, a student commented that he or she felt that team work stood out and they had learned much from one another. Another group member commented, “Numerous ideas were generated in the group dynamic compared to individual work.” Another group member commented, “The workload is easier to complete because it is divided among group members.” A student in this group commented that “No one in the group slacked in any way.” Another student perceived that a portion of each group members idea was put together to form the final concept.

In Class 1, Group 7, there was a common perception that students learned from their peers.

In Class 1, Group 8, the majority of students perceived that they had learned something from their peers. A group member commented, “They learned that communication is important.” Another student mentioned that increased creative thinking solved the problem. A group member commented, “The students learned that everyone saw things from different angles. This made it interesting for different idea generation and ways to interpret the project brief.”

In Class 2, Group 1, most students perceived that they had indeed learned something from their peers. One student commented that at the beginning of the project the group discussed their strong points and weak points to establish who would take the lead on each individual project component. As the project progressed, they got along very well and were convivial with one another. A group member commented, “We learned a lot from one another and especially how to interact in a group environment.”

Class 2, Group 2 felt that they had learned something from their peers. A student mentioned that they were able to reflect with one another to generate an innovative, completed design. One of the students mentioned that they were able to give helpful critique without being offensive. Another group member said that it was a safe space in which to brainstorm and reflect and it was also easier to get inspiration and develop ideas in comparison to individual work.

Class 2, Group 3 also felt that they had learned something from their peers. A student mentioned that the group members had different ideas and very diverse views that had led to an interesting learning environment. A student mentioned that they had learned new things about the project brief from fellow group members.

In Class 2, Group 4, a group member commented that they had worked well as a group and ideas were put together successfully. Another student commented that they had learned from one another and they had influenced one another positively. One student mentioned that the most valuable thing that had been learned was to work in a team.

In Class 2, Group 5, some group members commented that they had established personal relationships with peers outside of the normal classroom context and that they had learned from one another. One group member noted that they were amazed by how well the group communicated.

5.3.2 How would you describe lecturer engagement and interaction during class?

In Class 1, Group 1, a student commented that the lecturer had helped in any way she possibly could. She was actively engaging, and students learned a great deal. One student mentioned that they loved this class and that the lecturer was approachable and interested in the project. Another group member commented, “Although we did not see the lecturer often, she was always willing to help and give ideas where needed.”

In Class 1, Group 2, a student perceived that the lecturer made a great deal of effort to engage with the different groups and to help students develop their concepts. The lecturer gave clear instructions about the task. Another group member said that there were discussions with the lecturer on several occasions during class times to communicate ideas and that the lecturer gave great examples to approach the project and provided guidance throughout the project.

In Class 1, Group 3, a student perceived the lecturer as helpful, and she encouraged group discussions. Another group member mentioned that “She constantly checked in with our group to ensure that the group is working.” A student mentioned that the lecturer did a great job with interacting with the class by explaining the brief and the checking up on each group to see if they are heading in the right direction. One student mentioned that the lecturer engagement was excellent and that she came to all the groups to brainstorm ideas and she tried to inspire more creative ideas.

In Class 1, Group 4, a student described the lecturer engagement as successful and the group knew what they had to do. Another group member said that the lecturer explained everything well.

In Class 1, Group 5, one of the students mentioned as a result of group work the lecturer engagement was minimal. Another student mentioned that they got much individual attention which was one of the favourite things about the module. Another group member commented that the lecturer was always open and willing to assist whenever students felt misunderstood.

In Class 1, Group 6, students mentioned that the lecturer was excellent and hardworking. One student said that they enjoyed the teaching style and that the lecturer was interesting and made the students eager to listen and learn. Another group member commented that “She explained the work clearly so that each one of the members understood what to do.” One student said that the lecturer engagement was good, she asked relevant questions, helped during the process and gave constructive criticism.

In Class 1, Group 7, a student mentioned that the lecturer was helpful and advised students on how to improve their design. Another said, “She inspired students to be imaginative.” One group member commented that the lecturer was always available to help the students and to facilitate the generation of new ideas.

In Class 1, Group 8, a student commented that the lecturer engagement was good, positive and enthusiastic and that she kept everyone engaged. The same student also mentioned, “She constantly asked questions and is very involved” and “She made an effort to come around and see the process and she gave advice for possible improvements.”

In Class 2, Group 1, one of the students felt that the lecturer engaged with them and helped them. One student commented that the lecturer gave them “free rein” and this allowed for their ideas to be

developed. Another group member exclaimed that the feedback that was given to students was "insightful and they learned something from it".

In Class 2, Group 2, all the students mentioned that the lecturer had engaged with them during the process. A group member said, "The lecturer guided them throughout the whole process and their final design." Another said, "The lecturer was eager and showed interest to assist where needed." One of the group members mentioned that the lecturer always ensured that all students participated in class discussions and reflections. One of the group members explained that their group understood the opinions voiced and they agreed with the constructive criticism.

In Class 2, Group 3, a student mentioned that "lecturer engagement was consistent, and the lecturer was very determined to help the students". Another group member said, "The lecturer expected a lot from the students to come up with the best ideas possible." One student mentioned that the lecturer was engaging and always gave feedback and improvements were applicable.

Class 2, Group 4, a student commented that the lecturer spent individual time with each group and ensured that all students were up to date. Students in the group mentioned frequent engagement with lecturer. Students mentioned that the lecturer was informative and inclusive. One group member said, "The lecturer thoroughly briefed all students on the task expectations and interacted with the group."

In Class 2, Group 5, a couple of students commented on lecturer engagement with the group. One student said, "They came to realise new improvements that can be applied to their idea." Another student mentioned that overall engagement was good. One group member said, "The lecturer was helpful and gave constructive criticism during consultations." Another explained, "The lecturer's guidance was helpful and overall engagement was good."

5.3.3 Do you feel you were recognised as part of the team during your assignment by your peers as well as the lecturer? Elaborate on the active role you played during the assignment. Were you a valuable asset to your team?

In Class 1, Group 1, one student mentioned that they were not recognised by their peers, because of the group's pressure to perform well. This student experienced some of the other group members as rude. However, students aided in idea development. One of the students mentioned that some of the group members were too assertive and made others feel frustrated at times, but they were able to solve problems quickly. Some of the group members felt that they were recognised by their peers.

In Class 1, Group 2, group members commented that the group engaged with one another and everyone did their part to help. Another mentioned that they felt recognised by both their peers and the lecturer. Another student said, "Everyone played equal roles."

In Class 1, Group 3, one student mentioned that they were not recognised by the lecturer because the group was big, and the lecturer focused on the group as a whole but was definitely recognised by

the group. Another student mentioned that “in the beginning not all of the students felt that they had a big role but towards the end, that changed”.

In Class 1, Group 4, one student mentioned that they worked hard and impressed their peers as well as the lecturer. Other students mentioned they felt recognised as part of the group because they had specific roles to fulfil. Another group member said that they were not a nuisance or a hindrance to the group and they did play an indispensable role and their ideas contributed to the final presentation.

In Class 1, Group 5, one student mentioned that he or she was part of a team and each person had a specific responsibility. Another group member said, “Constant feedback was given in the group and it initiated better communication and team work.” One of the group members explained that all individuals took all ideas into consideration and that work was divided evenly.

In Class 1, Group 6, as in other groups, the students felt recognised as part of the team. One student mentioned that it was a small group, so it was easy to see the input from each student.

In Class 1, Group 7, again students felt recognised as part of a team. One group member said, “By working in a team, it made it easier to solve problems.” Another said that group work was something new to get used to, but the students managed to complete the task.

In Class 1, Group 8, as in most of the other groups, students felt recognised as part of a team and each group member gave constant input. One student mentioned that the group helped one another when needed and the communication was fairly good. One of the students said that some group members were not very helpful, but the rest of the group was understanding and assisted in the lacking areas.

In Class 2, Group 1, five of the students in the group felt that they were recognised as part of their team, but only one student said that she did not quite engage with the rest of her class. One student mentioned that she felt included in every section of the project, and through this it made her feel like a valuable team player.

In Class 2, Group 2, students mentioned that there was a strong leader in the group, and the rest of the group members were aware of the individuals who worked harder than the others.

In Class 2, Group 3, students felt recognised by their peers as well as their lecturer. One of the group members mentioned that at some point they had to work on their own, because not all group members were as engaging as expected. Another student mentioned that each team member was a vital part of the whole project, because everyone had a specific task.

In Class 2, Group 4, a student mentioned that everyone played an important part in the process. Another group member said that their ideas were heard and developed further into concepts. One student said, “Everyone in the group was recognised as individuals and the group worked as professionals.” One student said that his or her contribution was greatly appreciated, and his or her input was visible.

In Class 2, Group 5, students again felt that they were recognised and appreciated. A group member mentioned that they noticed different ways in which people think and analyse issues. One student

mentioned that she did not know whether she was an asset or not. A group member commented that each individual had a specific task to complete in the group.

5.3.4 How would you describe your relationship with the lecturer during this assignment?

In Class 1, Group 1, one of the group members noted that he or she had a strong sense of independence which at times was a barrier to consulting with the lecturer. Nonetheless this student felt heard and received constructive feedback. This student also said that they felt safe sharing ideas and did not mind posing questions when the situation required it. Another group member commented that the time allocation meant that little time was spent with the lecturer. One student said that the lecturer was excellent in terms of helping to develop personal growth via the thought process ("planting the seed that grows into a beautiful blossom").

In Class 1, Group 2, a student mentioned that the lecturer facilitated with students to develop their ideas and she was eager to see how this idea was presented. A group member commented that the group's relationship with the lecturer as well as with all the group members was good throughout the project. Another student commented that the relationship with the lecturer during the assignment included asking for guidance and discussing the final concept and the group's dynamics.

In Class 1, Group 3, one student mentioned that although there was not much engagement with the lecturer, he or she still engaged with the group. Another student mentioned that the lecturer did not come up with ideas for the group, but she helped to execute the group's exciting idea. One student mentioned that the group did not talk much to the lecturer because they had everything under control. A group member said, "The lecturer talked to the group as a whole and not to students individually." One student mentioned that they prefer group reflection rather than one-on-one interaction because it provides the opportunity for everyone to learn from the lecturer's advice. A group member commented that the lecturer was helpful, and the students felt comfortable about asking questions; they felt the lecturer gave good ideas and meaningful feedback.

In Class 1, Group 4, a student said that the lecturer was very approachable, and the relationship was good. Another student commented that the lecturer was very interactive with the students, which allowed for a better understanding of the task.

In Class 1, Group 5, a group member commented that the lecturer was highly professional with valued insights in certain aspects of the process. Another student said, "She was key in arriving at the final design conclusion." A group member mentioned that there were consultations and the lecturer was always willing to help and give the students individual time.

In Class 1, Group 6, a student said, "The relationship was good, she listened to the presentations." Another student mentioned that the lecturer was brutally honest and did not sell them dreams. Comments from the group included that these students did their work at the last minute and it was obvious that they had not prepared properly. One student mentioned that the relationship was amazing because the lecturer paid attention to the student presentation and gave feedback thereafter.

In Class 1, Group 7, one of the students said that they have no comment because the lecturer is the best. Another said the relationship with the lecturer is normal and satisfactory.

In Class 1, Group 8, a student mentioned that the relationship with the lecturer was good and she constantly gave feedback and assisted with ideas. Another student said the lecturer was understanding and clearly described what was needed. A group member mentioned that the students saw the lecturer as a mentor.

In Class 2, Group 1, most of the students in this group felt that the lecturer helped them with their project and gave thorough and positive feedback. One student mentioned that the lecturer explained concepts to them when they did not understand. One of the students said that there was too little time for interaction with the lecturer. Another student said that they cannot describe the relationship with the lecturer because they did not attend all the class sessions.

In Class 2, Group 2, a group member mentioned that the lecturer was helpful and gave helpful tips and constructive critique. Another said that the lecturer was able to illuminate the flaws of their ideas and assisted them in the development of their ideas and in thinking further.

In Class 2, Group 3, a student mentioned that they had constant communication with their lecturer. One student mentioned their group did not engage with the lecturer much, because not all of the group members attended all the classes. A group member explained that when they consulted with the lecturer, she gave insightful ideas and helped with their final concepts. Another group member said that the lecturer "really took time to listen to ideas and understand it before she gave feedback". One student mentioned that they want to work on their relationship with the lecturer.

In Class 2, Group 4, one student described the relationship with the lecturer as average, because they were not given enough time to spend with the lecturer; however, when time was spent with the lecturer, she understood her viewpoints. Another group member mentioned that the lecturer gave them guidance and helped the group through the course of the task. One student said, "The lecturer gave helpful tips and advice on how to improve the work." One of the group members mentioned that he had a good relationship with the lecturer.

In Class 2, Group 5, a group member commented that students experienced an open and reciprocal relationship with the lecturer. One of the group members noted that they would have enjoyed more time with the lecturer. Another student commented that because of time constraints not all students were given the chance to express themselves. In contrast, a group member said the relationship with the lecturer was good because she made time to talk to each of the students about their tasks. One student felt comfortable about talking to the lecturer and to listening to her feedback.

5.3.5 How did you experience your physical learning environment and content presented?

In Class 1, Group 1, one of the students mentioned that they did not feel that they worked well together as a team. On the contrary, another student experienced the environment as a safe space which enabled the development of ideas. A student said, "Although it was challenging it was still a good

experience." A group member mentioned that the content was interesting, and the learning environment was interactive.

In Class 1, Group 2, one of the students commented that if you have a good relationship with your peers it will create a good learning environment. Another student said that they were impressed by the content their group had presented. A group member commented that each individual team member interpreted and presented the content in different ways. Another student commented, "We learned to rely on others to do their part."

In Class 1, Group 3, a student mentioned that the working environment was pleasant, and the students did not have a hard time focusing. Another said, "The physical environment was good. All the tables were arranged to accommodate group work, which made it easier to distribute the work evenly and engage a lot better with one another." A student mentioned that it was a positive environment and the content was of excellent quality but a bit strange. They also mentioned that they loved the fact that it was a bit strange because it gave them the chance to come up with different creative ideas.

In Class 1, Group 4, a couple of students indicated that they understood the topic of the assignment. A student mentioned that the physical learning environment was good and productive. Another group member said that they enjoyed the subject and would have liked to get more involved and interactive in other classes as well. One student said that they felt that their group's idea was really good, although there was still room for improvement.

In Class 1, Group 5, a student commented that the workload was minimal in constructing a foundation idea but in order to create the end product required significantly more time and dedication. Another student said that the task was interesting and important, and it encouraged learning and development. One student commented, "We knew exactly what to do and the learning environment was perfect."

In Class 1, Group 6, a group member mentioned that the physical learning environment was normal, and students took ownership of their work. Another said that their class mates communicated well and asked relevant questions during the presentation.

In Class 1, Group 7, students mentioned that it was exhausting and a bit stressful because of the time allowance, but the group members always tried to be professional. Another group member mentioned that it was a laidback learning environment. Contrary to the aforementioned, one of the group members mentioned that it was a stressful environment for them because the group members struggled with ideas.

In Class 1, Group 8, a student said that the physical learning environment was entertaining and informative. The same student said that it was easy to focus on all the class presentations. Another group member commented that when the group had their informal meetings out of class to complete their project, not everyone showed up.

In Class 2, Group 1, the majority of the students said that they enjoyed the project and that it was fun and productive. These students thought that their ideas were smart and original. One student said that their physical environment was not visually stimulating.

In Class 2, Group 2, the group members commented that an overall positive involvement was experienced. A student mentioned that the members of the group felt comfortable with one another and decision-making was not a difficult task. Another student mentioned that they regarded it as a priority that each group member should feel confident to share their ideas in the group. A group member said it was a "fun experience and a comfortable environment was created to work in." A group member commented that they learned from the other students in the class.

In Class 2, Group 3, a group member said it was an active learning environment and it was good to brainstorm ideas as a group. Another student mentioned that it was a suitable environment and the content was well presented.

In Class 2, Group 4, one of the group members mentioned that it was a truly amazing experience. Another student said that they enjoyed doing something out of the ordinary and to be given 'status' with regard to their position. One group member said that presenting in front of the class was challenging, but being in a group made it easier.

In Class 2, Group 5, a student mentioned, "The learning environment was a bit chaotic, yet the group did focus." One of the students felt that the topic of the project was somewhat of a cliché; however, it was relevant. The same student mentioned that it was slightly difficult to come up with ideas because they do not live in Cape Town. A group member mentioned that in comparison to the other tasks in this module this one was different and fun. Another student mentioned that they do not have many group tasks, and the student felt that this was an effective method of learning.

5.4 Discussion of findings

Inductive content analysis was employed to categorise the collected questionnaire data as well as the observational data I had gathered. It should be noted that the prevalence or occurrence of each category was subject to my subjective views. Thus, it was only the opinion and views of the researcher and should be treated as such. The following main categories were identified:

1. Achieving more in group than as individuals (pg. 35)
2. Knowledge gained from peers and lecturer (pg. 36)
3. Lecturer involvement (pg. 37)
4. Peer recognition (pg. 38)
5. Peer and lecturer feedback (pg. 40)
6. Workload distribution (pg. 41)

Simple categorical plots will show each category and the number of times that this specific topic presented itself in the data set (see Figures 5.1–5.7).

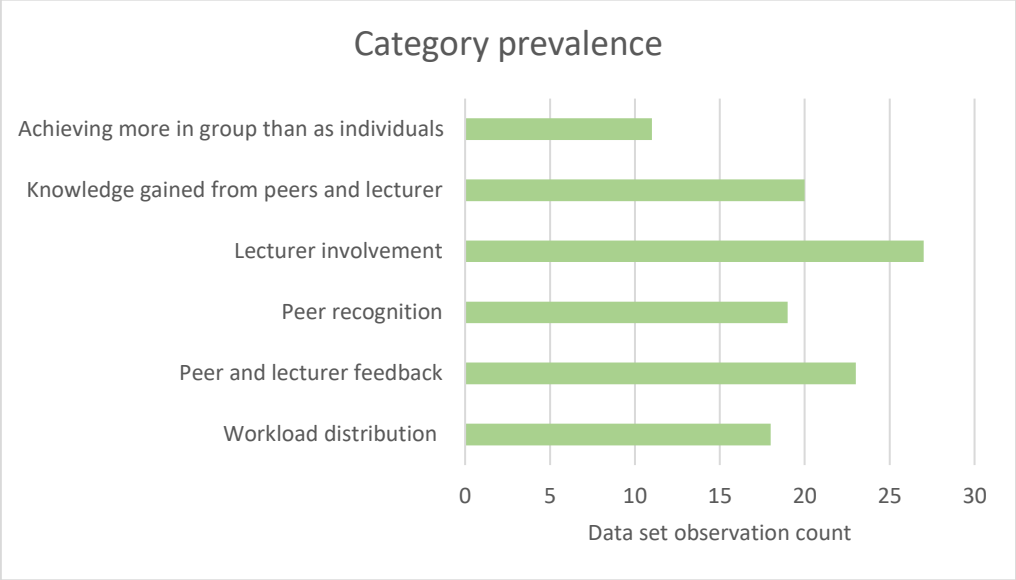

Figure 5.1: Category prevalence

5.4.1 Achieving more in group than as individuals

As mentioned in the section on theoretical perspectives, if a student is asked to perform a difficult task, it inevitably is difficult to perform alone but with the aided support structure given by peers they will be able to complete it and internalise the knowledge (Powell & Kalina 2009:244). Vygotsky believed that differences in experience and knowledge advance the knowledge of less experienced individuals in a community (Vanderburg 2006:375). This view of social constructivism is evident from the data gathered and it can be seen that the students – more than the lecturer – felt like they could achieve more in a group setting than what they could as individuals. The two data sets gathered (questionnaires and lecturer observation) showed different prevalence of this specific category (Figure 5.1). For lecturer observation this category only occurred twice, whereas in student questionnaires this topic occurred 10 times.

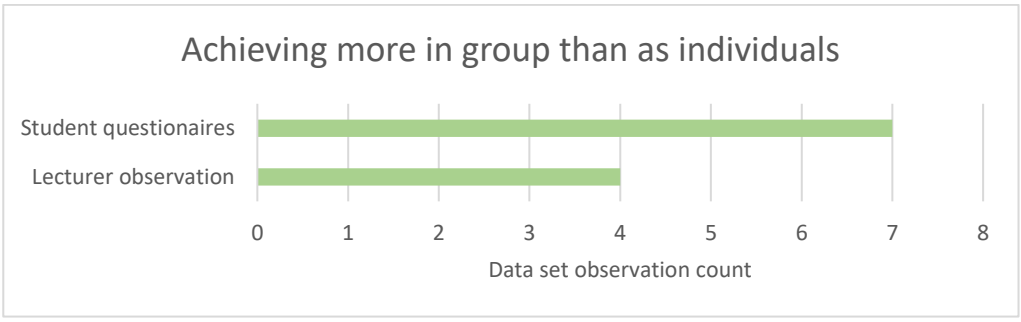

Figure 5.2: Achieving more in a group than as individuals

Based on the data (Figure 5.2) it might be suggested that achieving more as a group than as individuals is a personal experience rather than one that can be observed by the lecturer. This category also ties in with socio-cultural theories that give the opportunity for more academically capable students to assist those students that are not on the same academic level (Wang 2007:152).

The lecturer performed observations relating to this category in the following groups: 5.2.1.1 (Class 1, Group 1); 5.2.1.3 (Class 1, Group 3); 5.2.1.5 (Class 1, Group 5); and 5.2.2.1 (Class 2, Group 1).

The student questionnaires contained answers relating to this category for the following groups: Class 1, Group 2; Class 1, Group 6; Class 1, Group 7; Class 1, Group 8; Class 2, Group 1; Class 2, Group 2; and Class 2, Group 4.

Some examples are:

Class 2, Group 2: “It was also easier to get inspiration and develop ideas in comparison to individual work.”

Class 1, Group 8: They felt that they played an active role in the process because each of them was responsible for one of the specified requirements.

Class 1, Group 7: “By working in a team, it made it easier to solve problems.”

5.4.2 Knowledge gained from peers and lecturer

The study was structured in such a way as to be able to evaluate how social constructivism and socio-cultural learning affects a learning environment. Firstly, the class was divided into groups and each individual member given a specific role and research topic. Students had to employ cognitive constructivism to gain knowledge on their own individual relevant terms, regarding the role assigned to them. The constructivist perspective is a theory of human learning. Its most distinctive features may be explained as the way in which learners play an active role in the construction of their own knowledge and meaning gained from their personal encounters (Doolittle & Tech 1999). Next, each individual group member imparted their knowledge gained on the group in order to accomplish the task. The group members consequently gained knowledge from other group members as well as on their own, which ties in with the theoretical perspective of social constructivism, cognitive constructivism and socio-cultural learning.

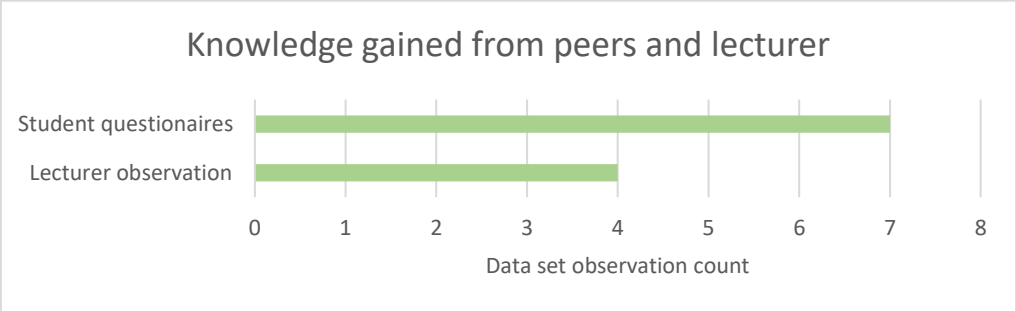

Figure 5.3: Knowledge gained from peers and lecturer

According to the data that was collected, this category (Figure 5.3) scored the third highest of all, showing that knowledge gained in a flipped classroom environment was definitely visible through student comments as well as lecturer observations.

The lecturer performed observations relating to this category for the following groups: 5.2.1.2 (Class 1, Group 2); 5.2.1.3 (Class 1, Group 3); 5.2.1.5 (Class 1, Group 5); 5.2.1.6 (Class 1, Group 6) and 5.2.2.2 (Class 2, Group 2).

The student questionnaires contained answers relating to this category for the following groups: Class 1, Group 1; Class 1, Group 3; Class 1, Group 4; Class 1, Group 5; Class 1, Group 6; Class 1, Group 7; Class 1, Group 8; Class 2, Group 1; Class 2, Group 2; Class 2, Group 3; Class 2, Group 4 and Class 2, Group 5. Some examples are:

Class 1, Group 5: Students learned from their peers. By collaborating and sharing ideas they were able to gather knowledge on alternative perspectives.

Class 2, Group 3: They felt they definitely learned from their peers in the group. The group members had different ideas and very diverse views that led to an interesting learning environment. They learned new things about the project brief from fellow group members.

Class 2, Group 5: Group members taught one another new and interesting ideas. They also experienced personal relationships with their peers outside of the normal classroom context.

5.4.3 Lecturer involvement

Lecturer involvement was the category that had the highest prevalence in student questionnaires. This was not discussed in the lecturer observation portion since a lecturer cannot observe herself. This high prevalence could be due to the structuring of questions, allowing for more discussion on this topic specifically. Vygotsky's research sought to prove that social interaction among individuals of different experience or knowledge levels advanced the knowledge level of the less experienced individuals in a community. Students employed in constructivism actively generate knowledge through their experience and interaction (Vanderburg 2006:375).

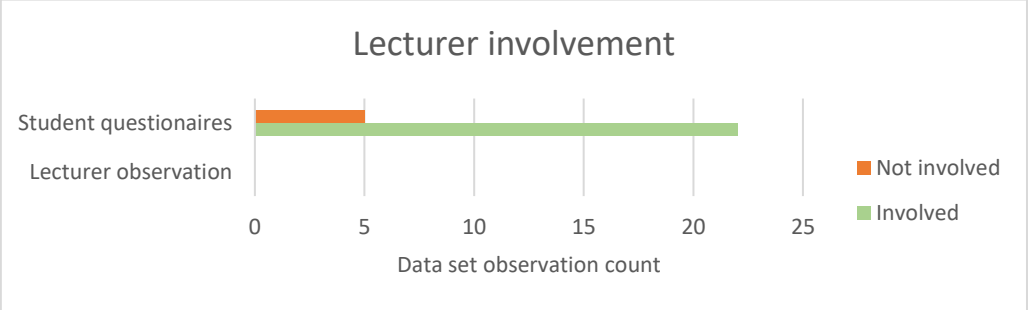

Figure 5.4: Lecturer involvement

As seen from the data presented in Figure 5.4, students mostly perceived the lecturer as involved. It should be noted that in all the cases where students perceived the lecturer as not-involved other students in the same group perceived the opposite. It is thus difficult to draw concrete conclusions from this data. Even though a flipped classroom approach was employed the majority of students still perceived the lecturer as involved. Thus, a flipped classroom approach is heavily reliant on a facilitator, as seen from the category with the most prevalent discussion.

The student questionnaires containing discussions relating to this category where the lecturer was involved included Class 1, Group 1; Class 1, Group 2; Class 1, Group 3; Class 1, Group 4; Class 1, Group 5; Class 1, Group 6; Class 1, Group 7; Class 1, Group 8; Class 2, Group 1; Class 2 , Group 2; Class 2, Group 3; Class 2, Group 4 and Class 2, Group 5.

The student questionnaires containing discussions relating to this category where the lecturer was not-involved included: Class 1, Group 3; Class 1, Group 5; Class 2, Group 1; Class 2, Group 3 and Class 2, Group 4. Some examples are:

Class 2, Group 4: One student mentioned an average relationship with lecturer because not enough time was given with the lecturer. Another group member mentioned that the lecturer gave guidance and helped the group through the course of the task. One student said, “The lecturer gave helpful tips and advice on how to improve the work.” One of the group members mentioned that he had a good relationship with the lecturer where consultation was required.

Class 1, Group 3: One student mentioned that there was not much engagement with the lecturer but that he or she still engaged with the group. One student mentioned that the group did not talk too much to the lecturer because they had everything under control. A group member said, “The lecturer talked to the group as a whole and not to students individually.” One student mentioned that they prefer group reflection rather than one-on-one interaction because it provides the opportunity for everyone to learn from the lecturer’s advice.

Class 1, Group 2: The lecturer facilitated with students to develop their ideas and she was eager to see how this idea was presented. The group’s relationship with the lecturer as well as the group throughout the project was good. She was helpful. The relationship with the lecturer during the assignment included asking for guidance, discussing the final concept and discussions regarding the group’s dynamics.

5.4.4 Peer recognition

Peer recognition was the fourth most prevalent category. Vygotsky believed that social interaction was a fundamental part of learning. Social constructivism is grounded on the communal interactions alongside an individual critical thinking process (Powell & Kalina 2009:243). As previously mentioned, children will more often than not learn most easily when their peers are involved. Vygotsky also postulated that students will learn more effectively if a support structure by their peers is established (Powell & Kalina 2009:244). Thus, for cooperative learning to be most effective, a safe and accepting environment needs to be established in the classroom.

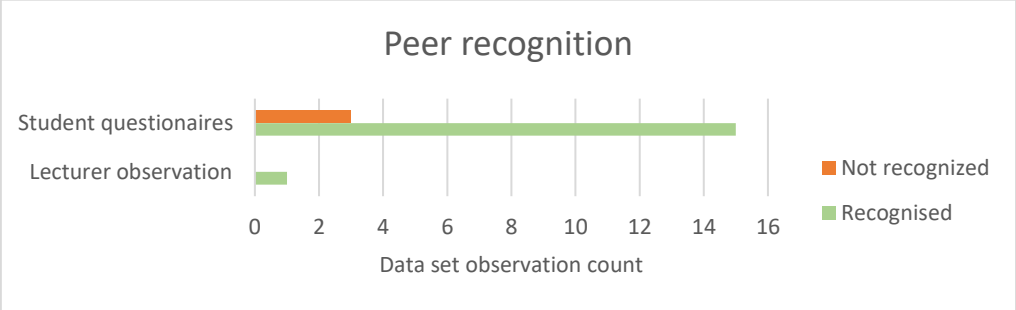

Figure 5.5: Peer recognition

As seen from the data (Figure 5.5), peer recognition is an important facet in the classroom and each individual student experiences this differently. While some students in the same group felt that they were recognised by their peers, others felt the opposite. Additionally, this recognition is mostly

applicable to the students since it was only mentioned once by the lecturer. Students have a stronger yearning for recognition by their peers and the lecturer than the other way around.

In Class 1, Group 3, a student commented that they learned that there is a very small difference between a leader and the person appointed to compile the work, and they had to make sure that nobody turned into the leader. This especially is interesting since it was not the aim to establish a sense of equality; certain personality traits will inevitably realise strong leaders in a group setting, and this is not negative. Leaders need to be present in a community. It was the aim to establish which traits of an individual are superior to others in the group and to use this to the advantage of the whole group. It was surprising that this group did not perceive it in this manner. This is the complete opposite of what Class 2, Group 8 did. As mentioned, one student commented that at the beginning of the project the group discussed among one another their strong points and weak points to establish who would take the lead on each individual project component.

The lecturer conducted observations relating to this category for the following group: Class 2, Group 4.

The student questionnaires containing discussions relating to this category where the lecturer was involved included: Class 1, Group 1; Class 1, Group 2; Class 1, Group 3; Class 1, Group 4; Class 1, Group 5; Class 1, Group 6; Class 1, Group 7; Class 1, Group 8; Class 2, Group 1; Class 2, Group 3; Class 2, Group 4 and Class 2, Group 5. Some examples are:

Class 2, Group 4: The lecturer observed it seemed that the students also became really good friends while doing the assignment. The socialisation and the interaction became more important than the assignment itself.

Class 1, Group 1: One student mentioned that they were not recognised by their peers, because of the pressure to perform good among the group. In the same group other students perceived that they were in fact recognised by their peers.

Class 2, Group 3: Students felt recognised by their peers as well as by their lecturer. One student felt appreciated because they had important roles to play.

Class 1, Group 1: Student comments included: “We learned that every member of the group has a different approach when it comes to doing the task. A little empathy goes a long way in group work, to play on one another’s strengths motivated members positively and it improved morale” and “Each of the group members had a different approach to problem solving, and by viewing these diverse ways gave inspiration to other students.”

5.4.5 Peer and lecturer feedback

Peer and lecturer feedback were the second most prevalent category that came up in both lecturer observations and student questionnaires. In order to create a constructivist classroom, a common interaction is required, such as a debate on a certain topic (Powell & Kalina 2009:248). By incorporating social interaction, learners can benefit from shared group knowledge. Social constructivism is an extremely efficient means of schooling (Powell & Kalina 2009:243). Vygotsky

believed that social interaction was a fundamental part of learning. Social constructivism is grounded on the communal interactions alongside an individual critical thinking process. Thus, communal interaction was both stimulated by group work as well as class presentation and whole classroom and lecturer feedback. The communal interaction is important, as is the critical thinking process that follows after feedback from the peers and lecturer. Cooperative learning is thus essential in creating a social constructivist classroom. Students are allowed to interact with the educator as well as with their peers. When feedback is given in a group or whole classroom setting, knowledge is available and may be internalised by all the students participating in the feedback session.

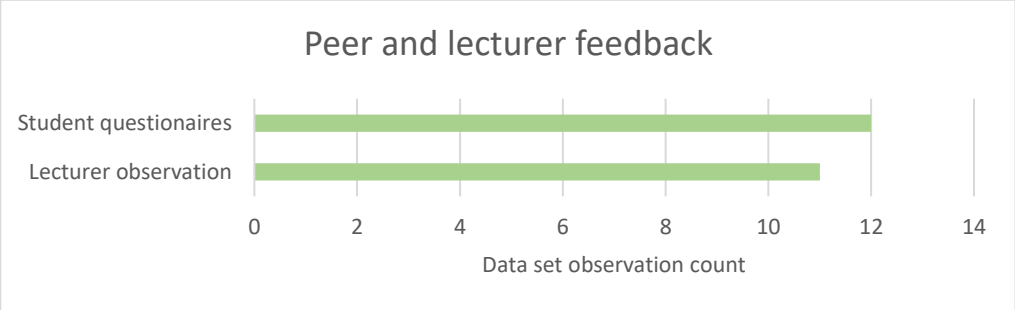

Figure 5.6: Peer and lecturer feedback

Feedback was observed by the lecturer about equally as many times as indicated by the student questionnaire feedback, showing the importance of this particular topic in a flipped classroom setting. Both peer and lecturer feedback were essential for some groups to be able to finalise or round off their assignments. Peer feedback enabled groups to interact with one another and with the lecturer. This in turn broadened the communal knowledge pool to include the whole classroom instead of single group members, and it enhanced the cooperative learning that occurred. To be able to establish a broader knowledge pool which can be transferred and utilised by all individuals in the classroom is perceived as a positive attribute of the flipped classroom.

The lecturer made observations relating to this category for the following groups: 5.2.1.1 (Class 1, Group 1); 5.2.1.2 (Class 1, Group 2); 5.2.1.3 (Class 1, Group 3); 5.2.1.4 (Class 1, Group 4); 5.2.1.6 (Class 1, Group 6); 5.2.1.7 (Class 1, Group 7); 5.2.1.8 (Class 1, Group 8); 5.2.2.2 (Class 2, Group 2); 5.2.2.3 (Class 2, Group 3); 5.2.2.4 (Class 2, Group 4) and 5.2.2.5 (Class 2, Group 5).

The student questionnaires containing discussions relating to this category where the lecturer was involved included Class 1, Group 1; Class 1, Group 3; Class 1, Group 4; Class 1, Group 5; Class 1, Group 6; Class 2, Group 1; Class 2, Group 3; Class 2, Group 4 and Class 2, Group 5.

Some examples are:

Class 1, Group 1: A student mentioned that it was important to give and receive constructive criticism. Some group members felt that not all their peers were able to stick to deadlines and take criticism well.

Class 2, Group 1: A group member exclaimed that the feedback that was given to students was insightful and they learned something from it.

Class 1, Group 4: The lecturer observed that the non-presenting class and the presenting group greatly enjoyed the peer feedback and the questions.

Class 2, Group 5: One group member said, “The lecturer was helpful and gave constructive criticism during consultations.”

Class 1, Group 5: A group member said, “Constant feedback was given in the group and it initiated better communication and team work.”

5.4.6 Workload distribution

When tasks or assignments are completed in a group, the knowledge is internalised for all group members but at a different rate according to their individual experiences (Powell & Kalina 2009:244). Socio-cultural theories are effective in that they allow for more academically capable students to assist those students that are not at the same academic level (Wang 2007:152). This learning perspective allows learners to engage in class activities; learners also interact with fellow learners when they solve problems and complete tasks (Wang 2007:152). Much positive feedback was gathered with regard to the flipped classroom and group work setting, but it should be noted that one observed flaw was workload distribution. In a group work setting, difference in intellectual ability could force certain members to complete an increased workload. This could affect peer recognition negatively because certain group members are obliged to do more work than others. They may therefore feel they deserve more credit. Some students might not even want to contribute in a group setting but still receive a proper grade because other group members picked up the slack.

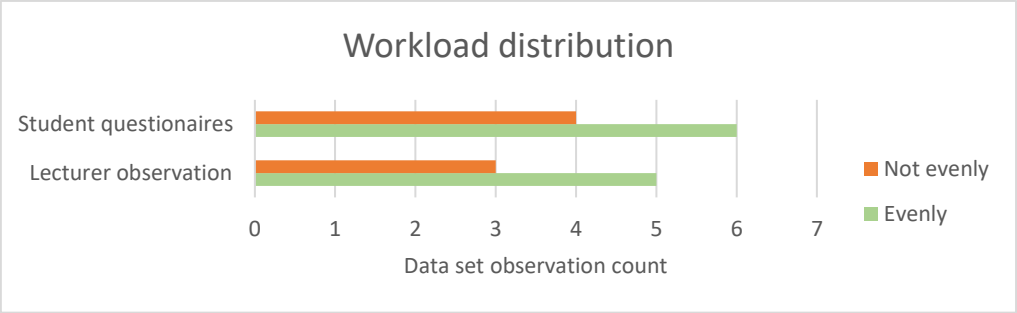

Figure 5.7: Workload distribution

As can be seen from the results reflected in Figure 5.7, a perception of not evenly distributed workload is almost as prevalent as evenly distributed workload, for both lecturer observations and student questionnaire comments. This is a big risk that needs to be carefully monitored in a group work, flipped classroom setting. Another positive remark observed was that students whom did not do their part, were cautioned by the community (other group members) to do their part. From the data it can be seen that a lecturer is able to pinpoint and observe when the workload is not evenly distributed and consequently can address this issue. Also, the lecturer’s observation closely matches the questionnaire feedback. Thus, it should be noted that the facilitator is responsible to address this issue, if the community (group) does not do so themselves.

The lecturer made observations relating to this category for the following groups: 5.2.1.1 (Class 1, Group 1); 5.2.1.2 (Class 1, Group 2); 5.2.1.4 (Class 1, Group 4); 5.2.1.7 (Class 1, Group 7); 5.2.1.8

(Class 1, Group 8); 5.2.2.1 (Class 2, Group 1); 5.2.2.3 (Class 2, Group 3) and 5.2.2.5 (Class 2, Group 5).

The student questionnaires containing discussions relating to this category where the lecturer was involved included Class 1, Group 1; Class 1, Group 2; Class 1, Group 3; Class 1, Group 5; Class 1, Group 6; Class 2, Group 2 and Class 2, Group 3.

Some examples are:

Class 1, Group 2: The lecturer observed that they clearly indicated the role allocation of each member in the group, and as a result, the workload was divided among fairly themselves. The students concurred that each student played an import part during the task, and their contributions were valuable. Everyone played an equal part.

Class 2, Group 3: The lecturer observed that in this group the workload was not equally divided. One student concurred that at some point they had to work on their own, because not all group members engaged as expected.

5.5 Conclusion

From all the data gathered, a couple of important topics were mentioned often during data analysis. Most of these topics were perceived as positive by the students as well as the lecturer, except for the workload distribution. Thus, it can be said that, in my view as the researcher, positive perception, experience and knowledge gain were achieved by implementing the flipped classroom teaching style. Some of the aspects that stood out was that these students could achieve more in a group setting than what they could have done alone, as a result of the knowledge transfer and differing skills of each student. These students also interacted in a social community setting by providing feedback and discussing whole class input. To put it all in perspective: by employing flipped classroom and the social constructivist approach every individual student as well as the lecturer could gain knowledge from the classroom as a whole.

6 CONCLUSION AND IMPLICATIONS

6.1 Introduction

Teaching is the process of taking decisions and acting on them. These decisions affect the future of other people and what or who they will become (Bligh 1993:104). Education can be seen as a management occupation: managing knowledge and learning. Decisions that need to be taken constantly vary considerably, from specific questions, methods or curricular design, to larger decisions concerning national policies. The impact of educational research therefore has far-reaching consequences, and may challenge traditional or conventional views (Bligh 1993:105).

Benjamin Franklin's famous statement, "Tell me and I forget, teach me and I may remember, involve me and I learn" (Rotellar & Cain 2016:6), personifies the fundamental principle of the flipped classroom concept. If implemented correctly, flipped classroom environments offer a myriad of advantages that cannot be ignored. These advantages are not only offered to the students but also to the educators themselves (Rotellar & Cain 2016:6).

A case study of an in-depth reflection on the flipped classroom with recognition of the hidden curriculum was researched. This study provided additional reflection on the myriad of advantages as well as disadvantages of the flipped classroom. This may add to a better societal understanding of the advantages as well as the disadvantages of the flipped classroom. As a result of years of engrained traditional teaching, some educators as well as students may be reluctant to accommodate a different teaching style. The analysis of this teaching style presented in the current study may ultimately lead to a communal acceptance of the flipped classroom.

6.2 Conclusions and implications

The majority of categories that were assessed related to perceived positive engagement and feedback from the flipped classroom approach, with the exception of workload distribution. Workload distribution is a big risk that needs to be carefully monitored in a group work, flipped classroom setting. Students who do not do their part, are addressed by the community (other group members), but it should not be left to their peers alone. A facilitator has the responsibility to address this issue when observed, and from the data it would seem that the lecturer has the capability to observe this phenomenon and act on it.

Educators need to re-examine how differences are created by social structures, which inhibit students from evolving creatively, based only on their success or failure in examinations. Educators need to facilitate learning in such a way that differences are recognised and encouraged. The acceptance of difference allows students to believe in themselves and uncover all their diverse talents and characteristics. By accepting diversity, students also develop their creative authentic identity (Adams *et al*.2007:70). This will ultimately extend into artistic knowledge that is used to convey a diversity of ideas and a message to society (Enfield 2013:22).

Assisting students in developing their independent learning potential is important in a creative setting since the skills needed in this fast-growing industry is ever changing (Enfield 2013:22). As in the case of the study conducted by McNally et al. (2017), the findings of this current study illustrated that there was a strong preference for the use of technology and collaborative learning, which demonstrates the benefits of the flipped classroom approach to learning. As stated previously, dialogue should be promoted to encourage critical thinking in students, which in turns gives personal meaning of the content to each student (Powell & Kalina 2009:245). It is evident that the preference for collaborative learning initiates the dialogue that is needed to establish an effective flipped classroom approach.

Finally, educational institutions have the crucial task of facilitating the social education of students in such a way to promote positive social change (Adams *et al.* 2007:35). Students from different ethnic groups, race, sex and age amalgamate into one central community of learning. It is an immense responsibility that is placed on educators to encourage and endorse appropriate social relations in the classroom, reward changes in awareness, personal growth, and efforts to endeavour change, finally establishing a balance between individual experiences and communal knowledge gain (Adams *et al*. 2007:35).

The hidden curriculum refers to everything that is not written, that is unintended in the classroom, and that does not form part of the prescribed course curriculum itself (Víctor, Semper & Blasco 2018:481). The hidden curriculum teaches students about social relationships and social responsibilities which are mimicked in the classroom. The shift from a teacher-centred model to a student-centred one in higher education is an aspect of the hidden curriculum (Víctor *et al.* 2018:486). The students absorb everything that is unspoken in terms of underlying social and cultural messages. The students that participated in this study definitely learned from one another, although it was unacknowledged. They learned unintended values and viewpoints from their peers, as in the case where workload distribution was addressed by the community. The students who did not perform learned the social aspect of doing one's part when the community or group expects one to carry out one's responsibilities.

6.3 Further research and critique of the research

Further research may focus on the comparison between the flipped classroom and traditional teaching approaches. This type of study might mitigate the current subjective views elaborated on in this study. Care should be taken to compare the teaching methods using the similar students and trying to deliver the same content where possible. It will be difficult to compare these methods completely and objectively since the same content cannot be delivered to the same group of people twice, as if both were occurring for the first time. Future research can thus try to gain objective results of student perceptions and engagement by means of third-party observation (McNally *et al.* 2017:294).

This study should be understood keeping a few points of critique in mind. The results are almost entirely based on self-reported data, or student collected data, self-analysed. Thus, the researcher's view will inevitably contain a measure of bias. The content employed in this study could also be unclear to the larger world of education, especially to educators who are not familiar with this particular creative setting. In future research, particular attention should be given to how groups are selected, to ensure

a random selection as far as possible, and enough time should be allocated for the completion of group tasks (Yilmaz 2017:101).

In order to truly realise a student-centred approach to learning, the current educational system would need to be taken into account, as the current traditional approach would have to be reconsidered (Enfield 2013:27).

7 REFERENCES

Abdi, A.A., Puplampu, K.P. & Sefa Dei, G.J. (eds.). 2006. *African education and globalization: in Critical perspectives*. Oxford: Lexington Books.

Adams, M., Bell, L.A. & Griffin, P. 2007. *Teaching for diversity and social justice*. 2nd edition. New York: Routledge.

Allsup, R.E. 2003. *Praxis and the possible: Thoughts on the writings of Maxine Greene and Paulo Freire.* Philosophy of Music Education Review, 11(2):157–169.

Al-Zahrani, A.M. 2015. From passive to active: The impact of the flipped classroom through social learning platforms on higher education students' creative thinking. *British Journal of Educational Technology*, 28(6):1133–1148.

Appel, M.H. & Goldberg, L.S. 1977. *Topics in cognitive development equilibration: Theory, research and application.* New York: Plenum Press.

Barker, D., Wallhead, T. & Quennerstedt, M. 2017. Student learning through interaction in physical education. *European Physical Education Review*, 23(3):273–278.

Bligh, D. 1993. Learning to teach in higher education. *Studies in Higher Education*, 18(1):105–111.

Bryman, A. 2012. *Social Research Methods*. 4th edition. Oxford: Oxford University Press.

Casey, A. 2017. Student interactions in the hidden curriculum. *European Physical Education Review*, 23(3):366–371.

Delacruz, E.M., Arnold, A., Kuo, A. & Parsons, M. 2009. *Globalization art & education*. Alexandria: National Art Education Association.

Doolittle, P.E. & Tech, V. 1999. *Constructivism and online education.* Blacksburg, VA: Virginia Polytechnic Institute and State University.

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K. & Kyngäs, H. 2014. Qualitative content analysis: A focus on trustworthiness. *Advances in Bioethics*, 1(10):39–62.

Enfield, J. 2013. Looking at the impact of the flipped classroom model of instruction on undergraduate multimedia students at CSUN. *TechTrends*, 57(6):14–27.

Fischman, G.E., Mclaren, P., Sünker, H. & Lankshear, C. (Eds.). 2005. *Critical theories, radical pedagogies, and global conflicts*. New York, NY: Rowman and Littlefield.

Freire, P. 1974. *Education for critical consciousness*. New York, Continuum.

Freire, P. & Shor, I. 1987. *A pedagogy for liberation: Dialogues on transforming education.* Massachusetts: Bergin & Garvey Publishers, Inc.

Godwin-Jones, R. 2005. Emerging technologies: Messaging, gaming, peer-to-peer sharing: Language learning strategies & tools for the millennial generation. *Language Learning & Technology*, 9(1).

[Online], Available: http://llt.msu.edu/vol9num1/pdf/vol9num1.pdf#page=24%5Cnhttp://www.questia.com/PM.qst?a=o&se=gglsc&d=5008329079 [2000, November 30].

Grant, C. 2013. First inversion: A rationale for implementing the “flipped approach” in tertiary music courses. *Australian Journal of Music Education*, 1(1). [Online], Available: https://files.eric.ed.gov/fulltext/EJ1061810.pdf [2018, January 23].

Hao, Y. & Lee, K.S. 2016. Teaching in flipped classrooms: Exploring pre-service teachers’ concerns. *Computers in Human Behavior*, 57:250–260.

Kedves, M. (s.a.). Visual arts for all: Reflections on the value of visual arts education. *Arts-ful Features*, 20–22.

Krahenbuhl, K.S. 2016. Student-centered education and constructivism: Challenges, concerns, and clarity for teachers. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 89(3):97–105.

McNally, B., Chipperfield, J., Dorsett, P., Del Fabbro, L., Frommolt, V., Goetz, S., Lewohl, J., Molineux, M., Pearson, A., Reddan, G., Roiko, A. & Rung, A. 2017. Flipped classroom experiences: Student preferences and flip strategy in a higher education context. *Higher Education*, 73(2):281–298.

Monaco, M. & Martin, M. 2007. The Millennial student: A new generation of learners. *Athletic Training Education Journal*, 2(2):42–46. [Online], Available: http://www.nataej.org/2.2/EJMonaco.pdf [2018, February 2].

Mouton, J. 2001. *How to succeed in your master’s & doctoral studies: A South African guide and resource book*. Pretoria: Van Schaik.

Nguyen, T.D., Cannata, M. & Miller, J. 2016. Understanding student behavioral engagement: Importance of student interaction with peers and teachers. *Journal of Educational Research*, 111(2):1–12.

O’Flaherty, J. and Phillips, C. 2015. The use of flipped classrooms in higher education: A scoping review. *Internet and Higher Education*, 25:85–95.

Onatra, A. & Peña, M. 2004. The hidden curriculum. *Profile Issues in Teachers’ Professional Development*. Universidad Nacional de Colombia (Sede Bogotá), 5(1):158–161. [Online], Available: https://doaj.org/article/f7aaabff83ae4691a8ab5f5d5235b1fb [2018, January 25].

Osmond, J. & Darlington, Y. 2005. Reflective analysis: Techniques for facilitating reflection. *Australian Social Work*, 58(1):3–14.

Palincsar, A.S. 1998. Social constructivist perspectives on teaching and learning. *Annual Review of Psychology*, 49:345–75.

Palmer, J.A., Cooper, D.E. & Bresler, L. 2001. *Fifty modern thinkers on education: From Piaget to the present day*, *Routledge key guides*. London and New York: Routledge.

Powell, K.C. & Kalina, C.J. 2009. Cognitive and social constructivism: Developing tools for an effective classroom. *Education*, 130(2):241–250.

Rotellar, C. & Cain, J. 2016. Research, perspectives, and recommendations on implementing the flipped classroom. *American Journal of Pharmaceutical Education*, 80(2):1–9.

Shenton, A.K. 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22:63–75.

Steen-Utheim, A.T. & Foldnes, N. 2017. A qualitative investigation of student engagement in a flipped classroom. *Teaching in Higher Education*, 23(3):307–324.

Thomas, D.R. 2003. A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation*, 27(2):237–246.

Van de Kamp, M.T., Wilfried, A., Rijlaarsdam, G. & van Drie, J. 2015. Enhancing divergent thinking in visual arts education: Effects of explicit instruction of meta-cognition. *British Journal of Educational Psychology*, 85(1):47–58.

Vanderburg, R.M. 2006. Reviewing research on teaching writing based on Vygotsky's theories: What we can learn. *Reading & Writing Quarterly ISSN*, 22:375–393.

Víctor, J., Semper, O. & Blasco, M. 2018. Revealing the hidden curriculum in higher education. *Studies in Philosophy and Education,* 37(5):481–498.

Vrasidas, C. 2000. Constructivism versus objectivism: Implications for interaction, course design, and evaluation in distance education. *International Journal of Educational Telecommunications*, 6(4):339–362.

Vygotsky, L. S. 1978. *Mind in society: The development of higher psychological processes.* Massachusetts: Harvard University Press.

Walther, J. 2014. Understanding interpretive research through the lens of a cultural Verfremdungseffekt. *Journal of Engineering Education*, 103(3):450–462.

Wang, L. 2007. Sociocultural learning theories and information literacy teaching activities in higher education. *Reference & User Services Quarterly,* 47(2)149–158.

Wangenge-Ouma, G. 2012. Tuition fees and the challenge of making higher education a popular commodity in South Africa. *Higher Education*, 64(6):831–844.

Yilmaz, Ö. 2017. Flipped higher education classroom: An application in environmental education course in primary education. *Higher Education Studies*, 7(3):93–102.

Yip, K. 2007. Self-reflection in reflective practice: A Jaspers' orientation. *Reflective Practice*, 8(2):285–298.

8 ADDENDA

ADDENDUM A: Consent Form

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

CONSENT TO PARTICIPATE IN RESEARCH

You are invited to take part in a study conducted by Marita Viviers, from the Visual Arts Department at Stellenbosch University.

1. **PURPOSE OF THE STUDY**

This study will aim to reflect on a teaching style called the flipped classroom. It will aim to discover advantages as well as disadvantages of the flipped classroom. This will provide a better understanding to society as well as students of the flipped classroom teaching style.

2. **WHAT WILL BE ASKED OF YOU**

If you agree to take part in this study, you will be asked to complete a short questionnaire on your experience in a flipped classroom teaching and learning environment. No additional tasks except that what is already prescribed in your curriculum will be requested from yourself. Time will be given in class to complete a questionnaire of 5 questions after one of your prescribed assignments has been presented and completed in the flipped classroom teaching style.

3. **POSSIBLE BENEFITS TO PARTICIPANTS AND/OR TO THE SOCIETY**

No additional marks will be allocated to students for participating. Participation will benefit society as well as students understanding of the flipped classroom.

4. **PROTECTION OF YOUR INFORMATION, CONFIDENTIALITY AND IDENTITY**

Any information you share with me during this study and that could possibly identify you as a participant will be protected. This will be done by keeping your identity anonymous. No personal information will be filled in on the questionnaire. Questions alone will be answered without the lecturer knowing which questionnaire belongs to which student. The questions answered will be used in the study as data to establish advantages and disadvantages of the flipped classroom teaching style. I will write summaries to be published in academic journals or books, or presented at academic conferences. You may ask me to send you a summary of the research This information will be stored on a password protected laptop until the study is complete upon which time it will be deleted, and paper copies destroyed.

5. PARTICIPATION AND WITHDRAWAL

You can choose whether to be part of this study or not. If you agree to take part in this study, you may withdraw at any time without any consequence. Your participation would be greatly appreciated.

6. RIGHTS OF RESEARCH PARTICIPANTS

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. Whether or not you decide to participate in this research, there will be no impact on your work. There are no direct risks or benefits to you if you participate in this study.

Please do feel free to contact me should you have any questions about this research, or if there is anything you need to know before you decide whether or not to participate. The contact details of the researcher are as follows:

Kind regards
Marita Viviers
Marita.viviers@gmail.com

DECLARATION OF CONSENT BY THE PARTICIPANT

As the participant I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

By signing below, I _____ agree to take part in this research study, as conducted by _____Marita Viviers_____

_____ _____

Signature of Participant **Date**

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions.

_____ _____

Signature of Principal Investigator **Date**

ADDENDUM B: Data Analysis Questionnaire

Data Analysis Questionnaire

Project title: Examining the flipped classroom approach to teaching in a creative development setting in higher education in South Africa.

1. Do you feel that you have learned something from your peers? What stood out for you from the learning experience?	
2. How would you describe lecturer engagement and interaction during class?	
3. Do you feel you were recognized as part of the team during your assignment by both your peers as well as the lecturer? Elaborate on the active role you played during the assignment. Were you a valuable asset to your team?	
4. How would you describe your relationship with the lecturer during this assignment?	
5. How did you experience your physical learning environment and content presented?	

Date: _____

ADDENDUM C: Consent form Stellenbosch University

UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

APPROVED WITH STIPULATIONS
REC Humanities New Application Form

22 June 2018

Project number: ARTS-2018-6560

Project title: Examining the flipped classroom approach to teaching in a creative development setting in higher education in South Africa.

Dear Mrs Marita Viviers

Your REC Humanities New Application Form submitted on 25 April 2018 was reviewed by the REC: Humanities and approved with stipulations.

Ethics approval period:

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
22 June 2018	21 June 2021

REC STIPULATIONS:

The researcher may proceed with the envisaged research provided that the following stipulations, relevant to the approval of the project are adhered to or addressed:

1. PARTICIPANT SELECTION AND RECRUITMENT

1.1) In Section 5. 3.3 (application form), the investigator should be specific on how she is going to invite participants to participate in the study. It appears that students who will not be willing to participate in the study, might feel obliged to complete the questionnaire because each student will be given a questionnaire after completing the assignment in class. [RESPONSE REQUIRED]

1.2) The investigator should rephrase the statement in Section 5. 3.1 (application form), which says: "if students decide not to withdraw from the study, their data will be removed before analysis and reflection is commenced".

2. INSTRUMENTS (QUESTIONNAIRES, SCALES, INTERVIEW OUTLINES, etc.)

In Section 5. 3.1 of the proposal, the investigator has indicated that she might apply structured observation, participant observation, content analysis and interviews. She indicated that she will analyse lecturers' notes, observations and project assessments. If she is going to use these instruments, she should upload these observation and interview outlines in the application form for review. She should inform participants of these different data sources to be used as well. [RESPONSE AND ACTION REQUIRED]

HOW TO RESPOND:

Some of these stipulations may require your response. Where a response is required, you must respond to the REC within **six (6)** months of the date of this letter. Your approval would expire automatically should your response not be received by the REC within 6 months of the date of this letter.

Your response (and all changes requested) must be done directly on the electronic application form on the Infonetica system: https://applyethics.sun.ac.za/Project/Index/6879

Where revision to supporting documents is required, please ensure that you replace all outdated documents on your application form with the revised versions. Please respond to the stipulations in a separate cover letter titled "**Response to REC stipulations**" and attach the cover letter in the section **Additional Information and Documents**.

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: Humanities, the researcher must notify the REC of these changes.

Please use your SU project number (6560) on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

FOR CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

Please note that a progress report should be submitted to the Research Ethics Committee: Humanities before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary)

Included Documents:

Document Type	File Name	Date	Version
Research Protocol/Proposal	Marita Viviers - Research Proposal	22/02/2018	1
Informed Consent Form	Consent form	23/04/2018	1
Data collection tool	Data Analysis Questionnaire	23/04/2018	1
Proof of permission	Vega Application for Clearence Document	23/04/2018	1
Proof of permission	Marita Submission email 1	23/04/2018	1
Proof of permission	Marita Submission Recieved	23/04/2018	1

If you have any questions or need further help, please contact the REC office at cgraham@sun.ac.za.

Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)

National Health Research Ethics Committee (NHREC) registration number: REC-050411-032.
The Research Ethics Committee: Humanities complies with the SA National Health Act No.61 2003 as it pertains to health research. In addition, this committee abides by the ethical norms and principles for research established by the Declaration of Helsinki (2013) and the Department of Health Guidelines for Ethical Research: Principles Structures and Processes (2nd Ed.) 2015. Annually a number of projects may be selected randomly for an external audit.

Investigator Responsibilities

Protection of Human Research Participants

Some of the general responsibilities investigators have when conducting research involving human participants are listed below:

1. Conducting the Research. You are responsible for making sure that the research is conducted according to the REC approved research protocol. You are also responsible for the actions of all your co-investigators and research staff involved with this research. You must also ensure that the research is conducted within the standards of your field of research.

2.Participant Enrollment. You may not recruit or enrol participants prior to the REC approval date or after the expiration date of REC approval. All recruitment materials for any form of media must be approved by the REC prior to their use.

3.Informed Consent. You are responsible for obtaining and documenting effective informed consent using **only** the REC-approved consent documents/process, and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Please give all participants copies of the signed informed consent documents. Keep the originals in your secured research files for at least five (5) years.

4.Continuing Review. The REC must review and approve all REC-approved research proposals at intervals appropriate to the degree of risk but not less than once per year. There is **no grace period.** Prior to the date on which the REC approval of the research expires, **it is your responsibility to submit the progress report in a timely fashion to ensure a lapse in REC approval does not occur.** If REC approval of your research lapses, you must stop new participant enrollment, and contact the REC office immediately.

5.Amendments and Changes. If you wish to amend or change any aspect of your research (such as research design, interventions or procedures, participant population, informed consent document, instruments, surveys or recruiting material), you must submit the amendment to the REC for review using the current Amendment Form. You **may not initiate** any amendments or changes to your research without first obtaining written REC review and approval. The **only exception** is when it is necessary to eliminate apparent immediate hazards to participants and the REC should be immediately informed of this necessity.

6.Adverse or Unanticipated Events. Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research-related injuries, occurring at this institution or at other performance sites must be reported to Malene Fouche within **five (5) days** of discovery of the incident. You must also report any instances of serious or continuing problems, or non-compliance with the RECs requirements for protecting human research participants. The only exception to this policy is that the death of a research participant must be reported in accordance with the Stellenbosch University Research Ethics Committee Standard Operating Procedures. All reportable events should be submitted to the REC using the Serious Adverse Event Report Form.

7.Research Record Keeping. You must keep the following research-related records, at a minimum, in a secure location for a minimum of five years: the REC approved research proposal and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence from the REC

8.Provision of Counselling or emergency support. When a dedicated counsellor or psychologist provides support to a participant without prior REC review and approval, to the extent permitted by law, such activities will not be recognised as research nor the data used in support of research. Such cases should be indicated in the progress report or final report.

9.Final reports. When you have completed (no further participant enrollment, interactions or interventions) or stopped work on your research, you must submit a Final Report to the REC.

10.On-Site Evaluations, Inspections, or Audits. If you are notified that your research will be reviewed or audited by the sponsor or any other external agency or any internal group, you must inform the REC immediately of the impending audit/evaluation.

ADDENDUM D: Institution Approval Form

[redacted]

REF: R5018
Enquiries: [redacted]
Date: 30/04/2018

[redacted]

REQUEST FOR RESEARCH TO BE CONDUCTED ON AN [redacted]

Dear M Viviers

The committee considered the evidence of your application and have approved this request - on condition that you strictly adhere to the conditions stipulated below. This approval is based on the assumption that the information you have provided is true and factually correct. Approval is granted for:

Initial and Surname:	M Viviers
Student number:	N/A
Institution where registered:	Stellenbosch University
Qualification:	MA in Visual Arts
Year in which research will be conducted:	2018
Year in which you aim to graduate:	2019
Title of study:	Examining the flipped classroom approach to teaching in a creative development setting in higher education in South Africa.

[redacted]

CONDITIONS TO BE FULFILLED IN RELATION TO RESEARCH

Permission is granted to proceed with the above study subject to the conditions listed below being met and may be withdrawn should any of these conditions be flouted.

Please note: The panel has not considered the merits, accuracy or ethical soundness of the research. The only merits examined are the use of [redacted] as a sample. Permission is granted subject to the following conditions:

1. A copy of the final paper must be submitted electronically to [redacted] Research and Development Manager at [redacted] no later than 30 days post finalisation.
2. The researcher(s) is not permitted to refer to [redacted] brand's name, logo, brand or any other identifiers in any way including in questionnaires, surveys, interviews, proposal, research reports, etc. [redacted] brand needs to be referred to in a generic manner, for example 'An HE provider; … an educational brand of an HE provider; … etc.'
3. The researcher(s) will need to obtain informed consent in writing from all of the participants in his/ her sample if the study is not anonymous.
4. If the [redacted], the researcher(s) is not permitted to refer to [redacted] by name. [redacted] needs to be referred to it in a generic manner such as the [redacted] Education provider."
5. A copy of this letter to be forwarded to the relevant person(s) at the brand or [redacted] that would be involved in the study.
6. Research to be conducted in such a way that the normal programme of the site/ offices is not interrupted.
7. The principal/ manager of a site must be consulted about an appropriate time when the researcher(s) may carry out the research at the site.
8. The researcher(s) may only use this data for these research purposes and in no other way.
9. Should the researcher(s) wish to publish this research or in any way make the results public, such as publishing the results on social media etc., this committee will need to approve the request first.
10. Photographs of human subjects may only be taken if relevant to the research, informed consent was obtained, and even with informed consent, the photographs may not be published on any platforms.
11. The researcher is responsible for supplying and utilising his/ her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/ or the offices visited for supplying such resources.
12. No names or identifying information of participants may be used within the research and the research must be voluntary.
13. If any of [redacted] reports are used as part of the research, identifying information needs to be removed.
14. Please make it clear that the information will not be used punitively in anyway, with participants and participants may in no way be counselled/advised based on this.
15. I would add the condition that maybe another lecturer should hand out the questionnaire so that it is clear to students that their non-participation is not in any way related to the assignment mark.

[redacted]

Wishing you the very best of luck.

Yours sincerely,

[redacted]

[redacted]

Research and Development Manager

[redacted]