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MA Professional Development Dissertation (DMX0160)

An Investigation into the Impact of Learning Environments and Teaching Large Student Cohorts within Design Subjects at Higher Education Level

Kathryn Brennand

A dissertation submitted to the University of Huddersfield in partial fulfillment of the requirements for the degree of Master of Arts in Professional Development

THE UNIVERSITY OF HUDDERSFIELD

Abstract

This research study investigates current pedagogical practices and examines the characteristics of the learning environment for design-based degree programmes within UK higher education. Its purpose is to identify current teaching and learning practices across a range of design disciplines within one specific institution in order to evaluate and implement improvements to enhance the undergraduate learning experience. In a period of rapid change, education is faced with higher expectations of what degree programmes are providing and is fast becoming a highly competitive market where the quality of education is paramount.

Literature surrounding this subject will be reviewed and discussed focusing on the increase in student participation within vocational subjects, design-based pedagogies, learning theories and the physical learning environment. The triangulation of methods used for this investigation examines two levels of perspective including that of academic tutors and entry-level undergraduates. The data collection methods include academic interviews, undergraduate questionnaires and a student focus group. The research findings were analysed and coded into key themes, these link back to existing research. The study measures the effectiveness of current teaching and learning practices; the academic and undergraduate input provides a detailed insight from tutors who facilitate the degree programs and students who have recent learning experience. The research concludes that practical-based degree programs must incorporate flexibility in the delivery of the subject; a blend of teaching methods is useful in supporting entry-level students in order to develop core subject knowledge, encourage autonomous learning and develop early employability skills.

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1. Introduction

This research will begin by outlining the context and background of the investigation. A detailed rationale is provided to justify the motivation for the research study on a local and national level. Within this chapter the aims are clearly defined considering the scope of the project and the intentions of how the research will be conducted.

1.1 Context

This research study aims to investigate the impact of the increasing size of student cohorts within art and design-based subjects in higher education (HE). The main focus for this study is to examine the effects of delivering a practical-based subject to large student cohorts, taking into consideration the undergraduate learning experience and the impact it has on the physical learning environment. The action research is conducted within a specific northern-based university situated in the UK. The fashion design undergraduate degree programme is part of the School of Art, Design and Architecture; for the purpose of this study the institution will be referred to as the design school. In this study the fashion design undergraduate course is investigated on a local level focused within one academic institution, however there are many comparable courses on a national level that are facing similar pressures due to the increase in student participation. The purpose of this investigation is to gain a clear understanding of how the design component within a fashion design undergraduate course is currently being facilitated; the findings are analysed in relation to other comparable design subjects within the same design school. The motivation for this research is to analyse current teaching practice in order to review and improve processes that will benefit both the undergraduate experience and streamline the delivery of this specific subject area overall.

This section will initially outline the context and rationale that contributes to the overarching research question; the aims of this research study are reviewed and underpinned by current literature surrounding the chosen subject area. The methodology outlines the selected methods used to gather research data and addresses issues such as reliability, validity and ethics. Finally the results of the research study are analysed and evaluated; key findings are identified and discussed in relation to devising an updated teaching and learning strategy to enhance the undergraduate learning experience on the fashion design degree program. This research is being conducted in order to enhance current teaching and learning processes at entry level within the design subject area; any key findings and recommendations will be presented at a departmental level within the design school to support the future delivery of fashion design.

1.2 Rationale

Higher education in the UK has recently experienced considerable change with the increase in tuition fees and the recent government decision to lift the cap on student recruitment per academic institution. These changes have inevitably challenged design academics to re-evaluate how degree programs are ultimately delivered. The impact of increasing student recruitment has to be managed carefully within the design school as the practical nature of this subject is very student-focused and regular tutor contact is critical to the student's development. A Subject Leader working in a UK design school (2014) believes that increasing student participation fundamentally impacts upon the management of a practical-based design course.

A certain amount of management, organisation and pastoral support is required for each student, so increasing numbers correspondingly places increasing demand on the time and energy of academic and administrative staff. Some of the specific issues relevant here may be managed in a fairly efficient way, but many of them demand individual treatment, for example in meeting individual students to discuss work in

progress, deliver feedback, discuss progression or facilitate pastoral support.

Design Subject Leader (2014)

Internal factors at course level that affect the institution when recruiting additional students can include assessment and feedback time, tutor contact time, reduced access to design facilities, complex timetabling and repeat teaching. All of the aforementioned considerations impact academic and administrative workload along with the overall student satisfaction that is measured on a national level. Meeting the students learning expectations is becoming increasing more important taking into consideration the overall expense of their education. A Head of Department from a UK design institution (2014) who has extensive experience in design education would agree that student expectations have changed dramatically since the introduction of tuition fees. The quote referred by the Design Subject Leader (2014) suggests that adopting a business-minded approach would be less ambiguous to students and would help to manage their expectations.

The students expect value for money both in teaching and facilities. It has also instigated a complaining culture where students perceive that things are inadequate.

Head of Department in Design (2014)

Students are more frequently making comments like "where are my fees being spent". So I would say students are more demanding in terms of expecting a base line quality of resources, teaching time and so on. However this emphasises the fact that they see themselves today more as consumers who are buying a product or service and are therefore more vocal in airing grievances or demanding value.

Design Subject Leader (2014)

Following discussions with design academics who teach within the design subject area it became apparent that there were similar concerns when planning the facilitation of teaching in relation to large year-one design cohorts. Consequently the result of recruiting large cohorts of design students can directly affect timetabling; undergraduate cohorts have to be split into manageable group sizes that inevitably have to be taught individually, resulting in repeat teaching.

From the institutions perspective repeat teaching is not cost effective or conducive to academic practice. Having experienced repeat teaching and complex planning scenarios over a number of years this research study is aimed at discovering an ideal blend of teaching pedagogies.

The reason for selecting this specific design-based course within one particular institution is the experience associated with the researcher involved in the study; the role of the researcher is a senior lecturer and the course leader of the fashion design degree programme. This study predominantly focuses on year-one design teaching; the characteristics of each year group across the degree courses vary according to the level of student experience. The foundation level was selected for the purpose of this investigation due to the teaching approaches required as during year-one the students are introduced to the core skills that equip them for the duration of their studies. How the range of core skills are delivered can be detrimental to the student's progression on the course; undoubtedly they must feel challenged, confident in their own abilities and be able to handle problem-solving tasks from the initial stages of their studies. These skills are outlined in the subject benchmark statement for art and design published by The Quality Assurance Agency (QAA) who are responsible for maintaining standards for all universities nationally. The statement outlines the skills and abilities that honours degree students should be able to demonstrate upon graduation.

Key literature that addresses cultural and educational change within the design subject area is referred to in the subsequent chapters and underpins the research question throughout this study. Two recent articles are discussed in the literature review and contribute to the design of the methodology. The first of the articles is published by Shreeve et al (2010) examines current teaching and learning pedagogies across a range of undergraduate design courses from various UK institutions. The research focuses on the academic perspective, examining their teaching practice along with the physical learning environment. Similarly the second research study conducted by Powers (2010) investigates

the teaching and learning issues that are affected by delivering a practical-based subject to large student cohorts. The study measures the effectiveness of active learning strategies within practical-based design subjects. The published articles produced by Shreeve et al (2010) and Powers (2010) are discussed in greater depth in the literature review and both support the methodology included in this research study.

The motivations for pursuing this investigation is to develop pedagogical research in order to support the planning of design-based subjects and enhance the student experience whilst reacting to cultural and educational changes. Evolving the programme of study to accommodate external variables encourages students to progress with the necessary skills required in the work place; it also be seen to improve retention rates and reduce absenteeism. From observation there is a noticeable reduction in academic administration duties when students positively engage with their studies; repeat assessment and attendance monitoring can be reduced significantly when students are present in workshops, seminars and lectures. This research study includes a triangulation of active research methods incorporating both academics and year-one design undergraduate perspectives. A series of individual interviews are conducted with senior design academics from within the same institution in order to investigate how practical-based subjects are delivered taking into consideration varying cohort sizes and physical learning environments. In contrast to the academic interviews a group of year-one design undergraduates participated in a questionnaire examining their learning experience, focusing on the design area of the fashion design course. The statistical data collated from the questionnaire is supported by a small student focus group which consists of participants who had previously completed the questionnaire. The analysis of the research data generated from the triangulation of methods should contribute to future course planning; this will be disseminated at both course and departmental level. The key aims for this research investigation are bullet pointed below; these aims form

the framework of the literature review and are referred to in the analysis and findings section in the latter part of the study.

Four key aims of the research investigation

- The impact of increasing levels of participation in the design subject area
- Investigating current art and design pedagogical practice
- Learning theories: experiential, problem-based and autonomous learning
- The physical learning environment; examining the characteristics of the undergraduate design studio

This chapter has introduced the research study focusing on the context of the project, providing a rationale and outlining the four key aims of the investigation. The following chapter reviews current literature that contributes specifically to design teaching pedagogies and studio-based learning environments.

References will be made to key literature throughout the study and discussions will be supported by academic quotations and statistical data extracted from the undergraduate questionnaire. A detailed description of the selected methods will be discussed in the methodology and the study will conclude with the analysis of the findings followed by any suggested recommendations for further research that could contribute to this subject area.

2. Literature review

Literature surrounding teaching and learning in higher education can be discussed in terms of economic change and evolving teaching and learning practices. Pedagogical practices and increasing levels of participation in the design subject area will be the primary focus of this literature review. The study will initially discuss pedagogy within the design subject area and will investigate the fundamental learning theories that occur within art and design based subjects. The secondary focus will address the impact of facilitating a practical-based degree programme taking into consideration large student group numbers and investigate the changing needs of the ever-increasing student cohorts. Finally the review will explore the impact of facilitating learning amongst large student cohorts and the effects it has on the physical learning environment. Each of these areas raises practical and pedagogical questions that will contribute to this research project and could ultimately influence the way the fashion design degree programme is facilitated.

2.1 Art and design pedagogical practices

“The study of art and design as an academic and intellectual pursuit develops a range of cognitive abilities related to the aesthetic, the moral, ethical and social contexts of the human experience. The capacity to visualise the world from different perspectives is not only intrinsically worthwhile as a personal skill, but is also an essential part of the human condition”.

(QAA Subject Benchmark statement: Art and Design 2008, p2.)

The art and design undergraduate learning experience varies according to the academic institution and specific subject areas. The QAA publishes subject specific benchmarks to maintain standards across higher education institutions throughout the UK. The subject benchmarks are periodically updated in accordance with cultural and economic developments; within the past five years new benchmarked approaches within teaching and learning have been devised

based on pedagogical changes and increasing student participation. The QAA consider independent and peer group learning as valuable components within art and design programmes in HE. These methods of learning have been highlighted due to the changing nature of design disciplines. The design subject area is considered to reflect real-life industry practice, encouraging students to learn autonomously through experiential and problem-based design projects; therefore providing a vocational outlet when successfully completed. The QAA outlines the following attributes that are developed whilst studying art and design within HE; although these outcomes have not changed significantly, they are clearly evolving to reflect current pedagogical practices.

Learning in art and design develops:

- The capacity to be creative
- An aesthetic sensibility
- Intellectual enquiry
- Skills in team working
- An appreciation of diversity
- The ability to conduct research in a variety of modes
- The quality of reflecting on one's own learning and development
- The capacity to work independently, determining one's own future learning needs

(QAA Subject Benchmark statement: Art and Design 2008)

The bullet pointed learning outcomes outlined by the QAA emphasises the need for developing autonomous learners who are able to work well both independently and in teams. This illustrates that students should be encouraged to explore ideas freely and reflect on their own findings in order to promote an intellectual level of enquiry.

A high percentage of teaching in design-based subjects takes place in studio environments. Students are presented with design projects and are expected to

resolve them through a systematic process that includes, research, development of ideas, finalising, and presenting the proposed final solution. American researchers Cannamo, K., et al (2011, p.13) investigate the effects of studio-based and problem-based learning amongst various design courses within the same academic institution. Their recent ethnographical study examines the way in which academics interact with student groups in order to guide them through the design process. Cannamo et al explains that traditional 'lectures' are not commonly used in design teaching, as students participating in studio-based learning are required to work both independently and cooperatively in informal surroundings to replicate real-life industry environments. In the same way Shreeve et al (2010, p.128) believes that experiential learning is key in art and design; she references Kolb's (1984) learning cycle in order to explain that design students should learn by doing and making. This valid point outlined by Kolb defines the key characteristics of learning.

Learning is a process whereby knowledge is created through the transformation of experience.

(Kolb, D. 1984, p.38)

The literature written by Kolb in the mid 1980s captures the early developments of experiential learning; he discusses 'non-traditional' students who learn in workshops rather than lecture based activities and the notion of internships being a new initiative. Kolb's early suggestions on how students learn through experience are now integrated and embedded in art and design degree programs, through studio workshops and optional yearlong placements. Shreeve places a strong emphasis on 'doing' rather than being able to produce a skilled performance. In addition Herron (1999, p.40) also supports this approach to learning suggesting that non-experiential learning processes that are solely lecture based and are only explored through reading, writing and memorising information can be described as horizontal surface learning that excludes any vertical depth through direct involvement or participation. There are distinct

overlaps between academic studio-based learning and professional design environments; on the whole students are expected to develop compatible industrial skills such as responding to unfamiliar design projects, effective time management, balancing multiple tasks, and formal and informal presentation of ideas. Shreeve et al (2010, p.129) discusses the expectation that students should be encouraged to take responsibility for their own learning through experimentation and exploration of open-ended design projects. Their responses are formed through trying out new ideas in safe studio environments with no distinct 'right' answer; She also suggests that tutors who work with students as co-learners are continually learning and discussing ideas alongside students in order to successfully answer their project briefs.

2.2 Experiential Learning

"People do learn from their experience, and the result of that learning can be reliably assessed and certified for college credit".

(Kolb, D. 1984, p.2)

There are few studies written about experiential learning specifically in the design field however there are distinct similarities between social sciences and art and design-based subjects. A very relevant theory advocated by Knowles et al (2005, p.197) explains that adults generally favour learning through experiential processes; problem-solving tasks are preferable when facilitating student-centred learning. He also suggests that learners best understand new information when it is clearly linked with a real-life context. This theory underpins the design curriculum in HE; students generally exceed learning expectations when inspirational external companies set collaborative design projects that provide a real sense of purpose and direct application of learning. The well-regarded model of experiential learning devised by Kolb's (1984) has influenced vocational subjects within HE over the past three decades. The theory involves four stages of learning, these include; concrete experience, observations and reflection,

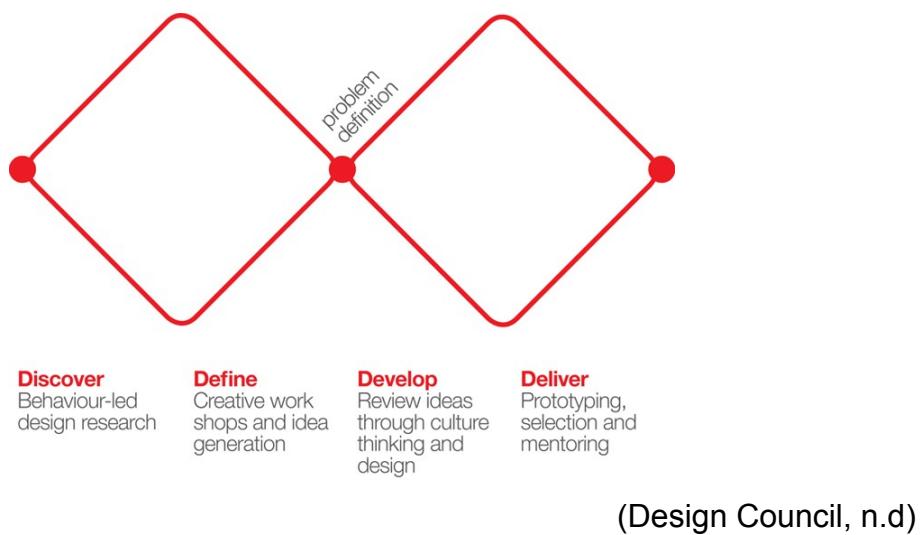
abstract conceptualisation and active experimentation. Knowles et al applies the four stages of Kolb's learning cycle into a suggested teaching and learning strategy, this could also be applied to the four main stages of design education as Column C indicates on the table. The table below has been developed from Knowles et al's (2005, p.198) adapted learning cycle developed initially by Kolb, the Column C suggests how Columns A and B can be linked into the four stages of learning in HE design programs. There are clear links between the current stages of learning in HE design programs and both Kolb's and Knowles et al learning stages. Interestingly there is a close correlation between the last two columns on the table that are influenced by Kolb's original stages of learning; the core stages of the design process mirrors the strategies that Knowles is suggesting to be beneficial to learning.

A. Kolb's stages	B. Knowles suggested teaching/learning strategies	C. Stages of design learning in HE
Concrete experience	Stimulation, real experience	Research & Development
Observe and reflect	Discussion, small groups, designated observers	Tutor / peer review
Abstract conceptualisation	Sharing concept	Creating a design portfolio suitable for future employment
Active experimentation	On-the-job experience, internships	Work placements / early career employment

Knowles et al (2005, p.198)

The fundamental purpose of vocational subjects within HE is to develop transferable skills that are required in targeted industries. The table summarises

the four main stages that must occur to gain future employment in the desired field after completing full time education. An external commercial comparison of the design process has been outlined by the Design Council (n.d) in their recent research findings they suggest there are four main stages of the design process. They studied work patterns at eleven leading design companies where their research highlighted similarities and shared approaches; the findings were mapped in the ‘double diamond’ design process model.



The model pinpoints four distinct phases: discover, define, develop and deliver. Interestingly the research findings from the Design Council mirror the design process that occurs throughout undergraduate degree courses. The similarities between educational and industry-based processes motivates students to learn in a certain way, the skills developed in design education can be applied directly into future employment, this could be one of the main motivations for the learning.

Knowles et al supports the idea of learner motivation, suggesting that adult learners are more motivated towards learning if it helps them to solve problems in their own lives or results in personal achievement. Knowles observes that the four core factors to motivate learning are success, volition, value and enjoyment. He also adds that there are three core questions that a student must be clear

about in order to motivate learning: how the learning will be conducted? What will be learnt? And why it will be valuable?

“Adults tend to be more motivated towards learning that helps them solve problems in their lives or results in internal payoffs. This does not mean that external payoffs (for example, salary increase) have no relevance, but rather that the internal need satisfaction is more potent motivator”.

Knowles, M.S., The Adult Learner 2005, p.199

2.3 Problem-based learning

The quality of the learning experience can be defined by the depth of knowledge gained, Brockbank and McGill (2007, p.42) defines ‘deep’ learning as a desire to obtain a grasp of the main point, making connections and drawing conclusions whereas ‘surface’ learning takes a more passive approach relying on memory and repetition. Many authors have acknowledged that experiential learning encourages a significant level of deeper understanding; another key learning theory that supports design teaching is the previously mentioned problem-based learning approach. Problem-based learning pedagogies emerged through medical education in the early 1980’s; it is believed that medical students were encouraged to solve problem-based scenarios in order to engage in the learning process. According to Savin-Baden and Major (2004) who define problem-based learning as a way of exploring a problem, they emphasize the need to identify key gaps in student knowledge in order to resolve or manage a situation. Over the past three decades problem-based learning has evolved and become less rigid in its definition, Baden and Major suggests that the fundamentals of this learning theory differs between educational disciplines. They identify various forms of active learning where it would appear the most appropriate definition for design education suggests that structured tasks are set by tutors in order to encourage practical outputs either working in small groups or on an individual basis. This form of active learning requires that the tutor takes on the role of the project

supervisor and that the student is responsible for solving problems independently through developing appropriate and innovative solutions. Baden and Major identify this type of learning activity as problem solving and problem management, this learning approach encourages students to take ownership of their learning experience and encourages them to connect with the design process.

Shreeve, Sims and Trowler's (2010) research is a focused contribution towards design teaching and learning pedagogy, they examine the key characteristics of learning within the subject area. The main motivation behind their recent research study is based on the infrequent amount of publications produced within the art and design discipline. Their published paper aims to depict a true reflection of teaching and learning in the creative arts. Their study is based on identifying current teaching practices; they recruited 35 design tutors to conduct interviews with six different colleges and across four design disciplines. The sample of interviewees were selected from a personal network of academic contacts, it could be argued the selection was a sample of convenience, however the varying participants amongst the different colleges offer alternative methods of teaching approaches. All the participants were asked to take a photograph of their learning environments; these formed the basis of the tutor-focused interviews. The interviews were successfully piloted prior to rolling them out into semi-structured interviews based around the tutors chosen learning environment image. The participants were asked a variety of questions that focused on the following topics; teaching methods, learning environments, areas of good practice, assessment techniques, and online learning facilities. The gathered photographs were intended to help researchers to form a visual narrative and understanding of current learning environments. The interviewer also shared a contrasting image of a learning environment to spark debate within the interview. The research findings for this study conclude by discussing how tutors interact with their students through a dialogue that mirrors the type of language used within the design profession. They also suggest that teaching design is very

student-focused where students are encouraged to be experimental and develop autonomous learning. Elements of the findings taken from Shreeve et al research will support the methodology for this study. However the research focuses solely on the results taken from tutor-based interviews, an interesting comparison could be drawn between the academic and the student perspective.

2.4 Design processes

It would be useful at this stage to identify how the design subject is delivered within HE and how students develop design concepts with tutor intervention. In a recent journal article Mewburn (2011, p.364) considers the notion of reflective practice and dissects the design pedagogies within design studios, she observes and discusses design student interaction that occurs in studio-based environments. Often in scheduled design seminars students are expected to share ideas within their peer group whilst other students are seen individually by the tutor to discuss their own personal design projects; Mewburn describes this process as the ‘desk crit’. She observes that during the ‘desk crit’ the student explains their project work whilst the tutor endeavours to understand the direction of the project and provides feedback for the student to work on for the following session. This is likened to role-play in Mewburn’s explanation; the roles are described as the tutor being the ‘experienced’ client or consultant and the student takes on the ‘novice’ role. This is considered as a traditional method for delivering design education; it is arguable that this approach can prepare students for real-world situations or in contrast it can create negative complex power relations between the student and tutor. Mewburn compares this to the old master/apprentice model and questions that this process could be a way of disciplining students. Mewburn uses Schon’s well known theory of reflective practice to explain this student/tutor interaction as ‘reflection in action’, asking the student to talk their ideas through helps them to reflect on the next step. Schon’s (1991, p.82) early research into reflective learning was predominantly focused in design education; specifically in the field of architecture and product design.

Much academic pedagogy refers to the reflective practice theory that evolved in the early 1980's as good practice, however the currency of the research has developed a new direction taking into consideration the increase in student participation and inflexibility of learning environments. The time that can be allocated to individual 'desk crits' has progressively been shortened in recent years; questioning the quality of tutor/student discussions and verbal feedback.

"The design review lasts for 20 minutes, and may be divided into several phases".
Schon, D. A. The Reflective Practitioner. P.82

The quote taken from Schon's literature written in the early 1990's suggests that the student cohort used in his research studies were relatively small in size. Spending 20 minutes with each individual design student would not be possible now taking into account current group sizes enrolled onto the design courses at the institution used for the purpose of this study. The amount of tutor time available to students studying design subjects two decades ago would have allowed the students time to discuss their project work in far greater depth. However it could be argued that the student could potentially become overly reliant on tutor feedback, which would have an adverse effect on the level of autonomous learning.

2.5 Increasing levels of student participation

In recent years higher education has seen a significant rise in participation along with the recent government decision to lift the cap on the amount of students that universities can recruit means that students numbers are set to increase even further. The direct impact of recruiting large cohorts of students studying on vocational subjects can include; increased assessment/administration duties, reduced tutor contact time, repeat teaching, lack of a personal touch along with diminishing dedicated work spaces. The direct impact on learning environments will be discussed later in the literature review. Evidently Shreeve et al (2013,

p.126) discusses the negative impacts along with the benefits of recruiting large student numbers, she suggests that academic institutions will need to evolve their teaching practices to accommodate the large cohorts of students. This is of particular importance in the design subject area where space and tutor time plays a huge role in the teaching and learning experience. In a recent article published in The Times Higher Education, Gibbs (2013) discusses the negative effect that teaching large student cohorts has on the quality of learning, he suggests that students placed in large groups have been found to take on a surface approach to learning. The fundamental components for quality learning are close tutor contact and prompt assessment and feedback, this is difficult to facilitate within large student groups. Gibbs also suggests that design studio environments are no longer personal spaces that students feel they can use as a base; they visit them infrequently rather than owning them for the duration of a creative project. He also highlights the correlation between increasing student cohorts and the decline in average marks; he states there is a noticeable decline of one per cent in marks for every additional twelve students within a group. Increasing student numbers can affect the dynamics of a group due to reduced social interaction within scheduled sessions. Students who prefer to take a passive approach to learning are also able to remain in the background and avoid group discussions; this can ultimately impacts the depth of learning and can affect retention rates.

A relevant journal article published by Powers (2010) analyses the effects of teaching a practical based subject to large cohorts. The study examines the effectiveness of current teaching and learning practices within a specific UK HE institution in order to maximise tutor contact time and availability of space. The motivation for Powers research is to cut out repeat teaching and improve the overall student learning experience. The study focuses on the promotion of metacognition through problem-solving activities and the implementation of active learning strategies. Both Powers and Gibbs highlight that the main problem associated with teaching large group numbers is the lack of opportunity for participation and learner interaction. It is suggested that large group teaching

does not fit within the necessary active learning approaches associated with practical-based subjects. Consequently as student participation increases through both UK and international applications the diversity of the student population is changing, students are recruited from a variety of entry routes meaning they arrive with differing skills and knowledge levels. Powers emphasises the importance of knowing the students learning needs and understanding their existing knowledge in order to encourage and facilitate deep learning.

The journal article written by Powers (2010) also focuses on a previous four-phase active research study that was conducted in 2003-2006, she evaluates how learning occurs amongst fashion design students and analyses data collected from practitioner journals, learner formative feedback, attendance records and attainment information. Powers compares the effects on learning through using traditional teaching methods versus non-traditional active-learning strategies where students are encouraged to participate. The study indicated that students preferred interactive teaching methods rather than a traditional passive learning style. The findings from Power's earlier study indicate that an organic approach to active learning is reduced considering the size of her 80 student strong cohort. The cohort was divided into smaller groups so that they could discuss and support each other with their project work whilst the lecturer could take on a more student-centred role. The small groups reformed into the full group on a weekly basis in order to reflect on the previous weeks findings. The method behind this strategy was to engage students in their learning and to encourage learner autonomy. However it was felt this approach did not advance their knowledge throughout the design process and highlighted the need for a blend between traditional teaching and the organic active-learning approach. It appears that Powers findings demonstrate that an active learning strategy could be considered as a successful method of delivering a practical-based subject to large student cohorts. The reviewed strategy appeared to reduce the amount of repeat teaching whilst improving student centred teaching; however Powers

suggests (2010, p.64) that there is still a need to place more emphasis on study skills and managing student expectations; particularly focusing on the feedback and assessment process. Aspects of this methodology will be taken into consideration in the subsequent research included in this study. It is important to recognise that Powers study began over a decade ago in 2003, since then educational and economical changes such the introduction of higher tuition fees, removal of the cap on student numbers and varying teaching methods amongst HE institutions should be taken into consideration.

2.6 Physical learning environments

Student-centred teaching and learning does not just apply to the amount of contact hours students receive from lecturers or the curriculum content, it also applies to the physical learning space. Student-centred learning environments allow various methods of learning to occur in both an informal and formal context through peer discussion groups, two-way dialogue and experimental freedom. In a recent article in The Times Higher, Arora (2013) discusses how the physical learning space can have a detrimental effect on the student's wellbeing, absenteeism and can also increase productivity. She focuses on the physical space rather than the technology that is integrated into the teaching environment; the primary focus of this article is critical in design teaching as practical-based skills are explored within studio environments rather than relying on technology driven equipment. However technology is not completely disregarded in the design studio for instance computers are available for students to access which have appropriate design software installed on them and tutor based technology has to be integrated for delivery purposes. Arora's article that focuses on HE learning environments discusses the psychological impacts that room configuration, colour schemes and natural light all have an effect on the students wellbeing. She believes that using certain colours on the walls in classrooms can increase morale and overall learner productivity by 5-10 percent. Arora raises an interesting point about HE institutions designing attractive new buildings in order

to increase student applications rather than considering teaching spaces from the interior out to the exterior. The research indicates that teaching environments require flexibility and should be planned by those who most frequently use the spaces.

The appropriateness of various learning environments within higher education has been the subject of debate for a number of years; research is often focused around traditional lecture theatres versus flexible student-centred learning environments. In order to nurture learner autonomy Beaten et al (2012, p.487) explains the importance of the learning environment and how it directly affects both the student and tutor's motivation and achievement. Beaten et al emphasises the importance of students taking responsibility for their own learning; encouraging a positive social environment allows students to feel comfortable in sharing ideas and working collaboratively within their peer groups. In contrast whilst Beaten et al list many benefits of using student-centred learning environments they also stress the need to incorporate structure and a supportive element; for example lectures and a detailed schedule of learning. The notion of incorporating formal structure alongside developing learner autonomy varies depending of the level of experience. Beaten et al indicates that novice level students may require more lecture-based instructional guidance until they understand what is required of them at HE level, they may also lack self-directed learning skills in order to complete tasks independently.

An additional consideration for teaching vocational design-based subjects is mirroring how 'real-life' design studios operate. Research produced by Herrington et al (2006, p.3) discusses the importance of authenticity by creating a realistic learning environment that relates to genuine professional practice. Tasks that the students are asked to perform are arguably the most crucial aspect of any learning environment, Herrington suggests that information resources should be available as and when required, not just delivered in a linear manner through a series of formal lectures and tutorials. They also observe that tasks that are

completed over a sustained period of time are preferable to shortened projects that often appear disconnected and can lead to confusion. Herrington et al concludes that non-conventional tasks that link to authentic experiences are beneficial to students making the transition into the work place after their education is complete; learning by doing tasks should echo industry requirements to ensure they have meaning and purpose. Classroom configurations should allow for flexibility to perform these 'learning in situ' tasks. One of the fundamental afore mentioned problems associated with teaching large cohorts of design students is the physical space requirement; complex timetabling and repeat teaching is necessary when student numbers are increasing yet the size of the available teaching spaces remain the same. In Power's (2010) investigation into teaching large design student cohorts, she explores various ways of reducing the need for repeat teaching however physical space constraints are not reviewed as part of the study.

2.7 Autonomous learning

There is a comprehensive amount of published research into student-centred learning environments and increasing student participation however there is very little research that combines the two. It would appear that the critical connection between the increase in student participation and engaging student-centred learning environments is the need for autonomous learning.

"True independent learning requires a critical, questioning approach. I believe that such an approach enhances personal and professional effectiveness. It is also fundamental to the advancement of understanding and knowledge in any field"

Baume, D. Developing Learner Autonomy. 1994 p.3.

In order to facilitate a successful learning environment, students should take responsibility for their own learning in addition to the required structured

guidance provided by academic leadership. Shreeve et al (2010, p.135) conclude their recent investigation into how design students learn by discussing the fluidity of the subject; students are expected to creatively explore and develop their own ideas and concepts following design project briefs. Design tutors find themselves discussing individual ideas and developing skills with students in order to prepare them to become independent practitioners both in an educational context and into a professional working environment. Shreeve et al also emphasises the need for change within creative disciplines with the continuing pressures on teaching space and tutor contact time. The nature of the subject area often encourages open-ended and unknown design project outcomes, it is important that students are capable of recognising how to develop their own ideas throughout the design process; ongoing decision making should be both critical and reflective. Baume (1994, p.3) summarises autonomous learning as a questioning approach where learning occurs independently, this process fundamentally occurs in order to achieve deeper understanding within any subject area.

A relevant study produced by Dazkir et al (2013, p.396) investigates how design students explore creative processes; at the start of their HE experience they often lack self-confidence and become overly reliant and demanding of the academic tutor. This is frequently described as ‘spoon feeding’ students information, the lacking level of confidence often means that students need to know exactly what they are required to do in order to pass assignments. Degree programs specifically within HE design disciplines are designed to develop learner autonomy progressively throughout their studies. Dazkir et al suggests that independent learning must promote and encourage self-directive and self-management skills, it is thought these attributes can only be developed over time. Dazkir et al’s research focuses on how students in the early stages in their university education find it difficult to research independently and can often be over-reliant on internet and secondary sources. As a result of this novice students continuously seek reassurance about the decisions they are required to make in the initial stages of their project work. For the most part design students

often prefer to receive open-ended design projects so that they can select their own project theme; however it could be argued the creative freedom can appear overwhelming amongst year one students. Heron (1999) believes that learner autonomy can only occur if the facilitator allows space for unprompted self-directed learning activities. In contrast Baume (1994) outlines the difficulties of moving towards autonomous learning for both the lecturer and the student, he explains that the shift away from students being solely dependant on what the lecturer delivers can be emotionally and intellectually stressful. Beaten et al (2012, p.488) believes that year-one students should be provided with direct instructional guidance, as they have not yet developed the appropriate thought patterns in their long-term memory to make the necessary connections between new information and prior knowledge. In summary the balance between the amount of tuition and independent study requires careful management and is highly dependant on the cohorts learning needs, particularly amongst year one students; taking into account the diversity of their previous educational backgrounds. Identifying successful methods of incorporating learner autonomy will be revisited later in the research study and will be discussed in relation to the effective management of large student groups.

3. Methodology and Conduct of Research

3.1 Introduction

This chapter focuses on the various methods that are included in the methodology. The discussion underpins the suitability of the chosen methods and how they were intended to form valid data in order to answer the research question.

Empirical research studies conducted within Art and Design based subjects in HE use methods of data collection and analysis taken from the social sciences. The main motivation for undertaking research within education is to identify current learning behaviours in order to inspire change usually within the curriculum, learning environment or methods of delivery. Bell (2010 p.14) points out that ethnographic research as an attempt to develop an understanding of how culture works. Qualitative research is generally the preferred method of data collection in art and design based subjects, in contrast to scientific research where results are generated through experiments and rigorous testing providing quantitative statistical data. The empiricist nature of quantitative research takes a scientific approach to research, data is generated through hypothesis driven methodologies. The analysis of quantitative data is based on statistics and is collated through large-scale experiments and surveys; therefore making it an inappropriate approach for this particular research study.

The purpose of qualitative research is to measure ethnographic and real world behaviour resulting in thematic exploration. Qualitative research methods can be carried out through surveys, interviews, observations and document analysis. In support of this Robson (2002 p47) believes that qualitative research ideas can evolve from personal experience or they may arise from discussion with others. Much real-world research has developed from the desire to solve a problem, or a need to change and improve methods and processes. To conclude Denscombe (1998, p172) outlines the distinction between qualitative and quantitative

methods as the way the data is treated analytically, although the two methods do overlap.

It is important to acknowledge the scale of this research project when considering the triangulation of data collection methods; this study is classed as small scale and low budget due to time constraints and lack of funding. In order to establish validity in the research findings it is important that the data is collected from multiple sources. The triangulation of methods included in this study focuses on two varying groups of participants; undergraduate students and design academics were invited to share their experience of teaching and learning practices in design-based subjects. Elliot (1991 p.82) explains that triangulating research methods allows the researcher to consider different kinds of evidence that can be compared against each other. This can be achieved through basic observations and accounts of situations from various angles and perspectives. Feasibility considerations for the research methods will take into account the accessibility of the appropriate kinds of people to collect data from, targeting student groups and academics within the subject area from the same institution.

3.2 Planning the research study

Whilst there are many different research instruments to consider, it is essential that the triangulation of methods are appropriate for the nature and scale of the study. The choice of research methods should be determined by the need of the investigation. Oppenheim (2000) believes that appropriate research methods inevitably vary depending on the research aims as indicated in the quote below.

“It would be more helpful to suggest that choosing the best design or best method is a matter of appropriateness. No single approach is always or necessarily superior; it all depends on what we need to find out and on the type of question to which we seek an answer”.

Oppenheim (2000, p.12)

However Denscombe (2010 p.4) explains there are no individual research strategies that can be recommended that will match any given research study.

“The choice of strategy, instead, depends on identifying one that works best for the particular research project in mind. It’s a matter of ‘horses for courses’ – choosing a strategy that is ‘fit for purpose’ in relation to the particular thing the research is trying to achieve.”

Denscombe (2010 p.4)

The nature of the subject must be the primary focus to aid the decision of which research methods are suitable for the study. For the purpose of this research investigation the main emphasis is to produce findings that highlight best practice for teaching and learning amongst first-year fashion design undergraduates. In order to obtain a strong understanding of the research findings interviews and questionnaires were conducted with both academic members of staff and undergraduate students.

As the researcher it is appropriate at this stage of the study to explain my personal involvement in conducting the research from an interpretist point of view. Throughout the 2013-14 academic year the majority of the design curriculum has been delivered by myself to year-one students, I feel it is important to personally conduct the research, as it will be beneficial as a researcher and practitioner. A professional relationship has been established throughout the academic year along with a good understanding of the first year fashion design students. Having worked with the cohort of students it encouraged them to cooperate with the research and has provided reliable feedback through questionnaires and a small focus group. It is arguable that participating in your own research study can be problematic and can affect the validity of the findings, Kerr and Anderson (2005 p.76) warn against being directly involved in the research study as it can lead to an inappropriate framing of the study. They later explain that generally academic

researchers are producing research alongside their full time paid work so research has to also be realistic in terms of design and the level of participation.

“The methodological approach to gathering data needs to be researcher friendly; by this we mean realistically doable, given the context and demands of our jobs”

Kerr and Anderson (2005 p.78)

In contrast to this belief Cohen et al (2010 p.19) discusses the importance of being involved in the gathering of research, they suggest that the social-world can only be understood by the individual who is involved in the ongoing action that is being investigated.

“Understanding of individuals’ interpretations of the world around them has to come from the inside, not the outside. Social science is thus seen as a subjective rather than an objective undertaking, as a means of dealing with the direct experience of people in specific contexts”.

Cohen et al (2010 p.19)

The methodology will examine the most suitable methods for the design of the research study. The most suitable methodology for this study is action research, which lends itself to the ‘hands on’ and ‘small scale’ nature of the research project. The practical nature of this approach is a strategy commonly used in social research; it is aimed at dealing with real-world problems typically in organisational surroundings, this will be revisited in detail later in this chapter. Data collection should capture a true representation of social behaviour taken from ordinary activities in order to provide both valid and reliable results.

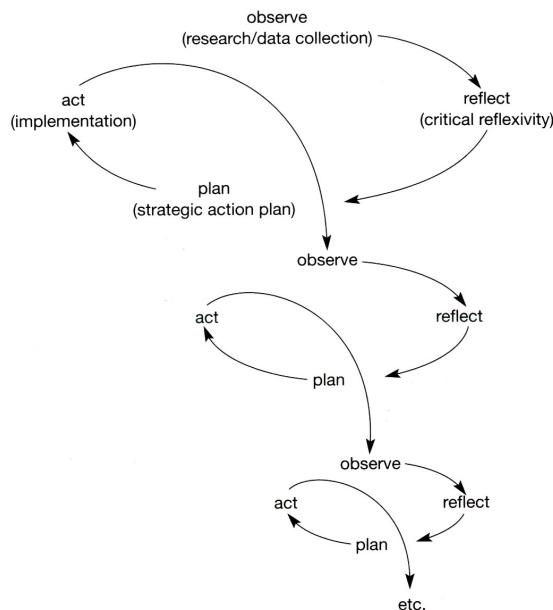
To organise the planning of the research for this study in a timely way the following research schedule was devised to ensure that critical deadlines were achieved at each stage of the process.

Schedule for research study

Time	Activity
September – October 2014	Finalise topic with supervisor and organise the main areas of research for the literature review
October – November 2014	Research into facilitating teaching and learning in design within HE and the suitability of the learning environment
November – December 2014	Writing up literature review
January – March 2014	Reviewing appropriate methods for the research study to include in the methodology
April 2014	Academic interviews and gathering photographs of the learning environments
May 2014	Questionnaires distributed to year one fashion design students to coincide with the completion of design program of study
May 2014	Small student focus group
May - June 2014	Analyse research findings and produce conclusion and further recommendations
July 2014	Hand in report and consider implementing possible changes
September 2013 – May 2014	Ongoing observation of year one undergraduate fashion design students studying specifically the design subject area

3.3 Action research

Action research is a method of gaining an understanding of a process or practice, which can then be evaluated in order to implement change. It is a practical way of problem solving for practitioners or in an educational context for academics to review the way they deliver their specialism. Koshy (2010, p.9) believes that action research is focused on various groups of people and often investigations take place within their natural settings. Performing research with participants outside of their natural surroundings could increase anxiety and impacts upon the reliability of the findings; all the research methods included in this study will be performed in familiar surroundings. The process of observing, reflecting, planning and implementing is comparable to Kolb's (1984) reflective learning cycle discussed previously in the literature review. The experiential learning cycle focuses on investigating current situations, the 'here and now' in order to facilitate change and move forward productively. Koshy (2010, p.7) discusses O'Leary's cycles of research this demonstrates the evaluation and implementation process as a continuous cycle for improving practice.



(Koshy, 2010, p.7)

This cylindrical evaluative process is key to the nature of this research study taking into account the changing contributing factors in HE. There are many models explaining action research, however Koshy cautiously warns that there should be a degree of flexibility when considering the methods that are included in the design of the research study.

The research question for this investigation focuses on the effect of teaching large cohorts of undergraduate design students and the direct impact that the environment has on learning within specific design subject areas. In order to establish a deeper understanding of the research question the triangulation of methods must include information provided by those who are directly involved in the learning experience, this includes both student and academic perspectives.

For the purpose of this study the ‘review, reflect and implementation’ process only occurs once through the findings, however Denscombe (2010, p.127) advocates that the cylindrical research approach should be ongoing in order to maintain best professional practice through a rolling program of research.

The following sub-sections in this chapter explore the suitability of the chosen methods used to gather each strand of the research data. The table presented below outlines the four main chosen research methods along with the action required in collating the findings.

Table of research methods

Research methods	Required action
1. Interviews with design academics	5 selected design academics were interviewed in their design studios where the subject is delivered on a regular basis
2. Collating visual representation of the learning environments within the various design subject areas	The 5 design academics were asked to bring along a photograph of their teaching environment
3. Year one fashion design undergraduate questionnaire	68 year one fashion design undergraduates were asked to complete 22 questions relating to their learning experience of the design program of study and their learning environment
4. Small year one fashion design undergraduate focus group	Following the undergraduate questionnaire a small focus group took place exploring accounts of their learning experience along with suggested areas of improvement

3.4 Questionnaires

The most appropriate data collection methods for this study are questionnaires, focus groups and structured interviews. There are pros and cons associated with all types of research methods, however for this particular study the methods have been selected based on the types of participants and the sample sizes. The questionnaires were given to a cohort of 68 fashion design undergraduates who have all shared the same experience of learning the design process from degree entry-level. The questionnaire is one of the chosen methods in this investigation because it is a means of measuring current opinion on this specific fashion design subject area. Koshy (2010, p.83) suggests that questionnaires are a

relatively easy way of measuring student's attitudes towards learning a particular subject area prior to implementing any change to the curriculum. The data collected from questionnaires can provide baseline data within research studies; they can also form the questions that may be required for further investigation methods such as interviews and focus groups. The design student cohort prior to the focus group completed the questionnaires; this allowed time to make any necessary adjustments to the range of questions.

Denscombe (1998, p88) defines questionnaires as a method of analysing current attitudes and viewpoints; conducting the questionnaire as a part of this study provides opinion from a student perspective. In addition May (2002) explains that surveys aim to describe or explain the opinion of the population using a representative sample; the population could include small-scale local surveys or large-scale online surveys with thousands of participants. May also suggests that surveys are used frequently to support academic research, the data produced indicates changes in lifestyle behaviours and public opinion.

The questionnaire for this study is classed as a small-scale survey due to the range of participants. The questionnaire was distributed 'face to face' to the undergraduate cohort within university time rather than using an online survey tool. Using online survey software such as survey monkey means that questionnaires are self-administrated and the participants may be less inclined to complete them. Although an online survey is not appropriate for this particular study, technology has allowed researchers to speed up the participant's response time, organise data effectively and reach a wide range of participants. In recent years internet surveys have become a popular method of gathering data, Ruane (2005) highlights that online questionnaires still have the same inherent problems as alternative methods. Problems can arise that directly affect validity; incorrect wording of the questions, question sequencing and formatting could be major causes of this.

The student cohort was issued the questionnaire at the end of the first year of their studies where they were in a position to reflect upon on their learning journey. The questionnaire contained 22 questions in two separate sections, firstly focusing on the learning environment, followed by matters surrounding their studies. The majority of the questionnaire uses a 5-point *Likert* scale to place the participants responses on an attitude continuum. The scale used in the questionnaire captures the respondent's degree of agreement. Robson (2002) suggests this measure is appealing to participants, they often enjoy filling out questionnaires using a *Likert* scale as it looks interesting and is not overly time consuming. Oppenheim (2000, p195) believes this is a popular and reliable scaling procedure, although it can lack reproducibility and a neutral point. The results can be skewed if the participant chooses to 'sit on the fence' with their responses and select the neutral option. There were also some open-ended questions included at the end of each section to gauge overall opinion.

According to Denscombe (1998, p95) the complexity of the questions and the time taken to fill out the questionnaire impacts upon how much of the questionnaire the participants will fully complete. The questions for this study were absolutely vital to the questionnaire with no repetition; this maintains the concentration levels of the participant. Prior to publicising the questionnaire the content must be consolidated and piloted, Denscombe suggests that the questionnaire should be pre-tested to see how long it takes to fill out. Robson (2002) believes that pre-testing questionnaires allows the opportunity to rethink the questions, sampling method and revise the design; at this stage if anything needs to be amended it can be re-tested prior to its release. The questionnaire for this study was pretested prior to its release; amendments were made to the sequencing of the questions to ensure a logical format for the participants complete.

3.5 Focus groups and Interviews

There are two forms of interviews included in the research study to enrich the findings gathered from the questionnaires completed by the fashion design undergraduate students. Firstly a small focus group including 8 of the fashion design undergraduates who completed the questionnaire were asked to discuss their first year learning journey in greater depth, in order to provide a richer understanding of their experience. The focus group was located in the design studio where the undergraduate students were familiar with the surroundings, ensuring they would feel comfortable sharing their learning experiences. The focus group was semi-structured in its approach; a short list of questions was prepared in advance along with additional questions to allow for further discussion. The group's responses were captured as a digital audio recording and the interview transcripts were analysed to provide useful data for the investigation. One advantage of performing focus groups is exploring a topic in an informal context; this supports the validity of the findings. The focus group discussions provide feedback on the shared experience of the undergraduates learning journey. Participant interaction within a focus group can stimulate the discussion and provide interesting and current opinion on a particular subject. The role of the researcher is to facilitate the proceedings rather than leading the discussion, this provides an honest and valid contribution to the research findings.

The second form of interview for this research study focuses on the academic teaching perspective; identifying views on teaching large cohorts of design students and the direct impact of their learning environment. A sample of academics was selected across the design school who deliver similar design-based subjects at year-one entry level in order to make appropriate comparisons and observations. A semi-structured interview approach was also appropriate for this research method. The interviews were located in the studios where each design academic regularly delivers their design specialism; the reason for this was to gain a deeper understanding of their teaching space. The research

investigation previously discussed in the literature review conducted by Shreeve et al (2010) used a mixed-method approach combining semi-structured interviews with academics along with collating a visual narrative to form their discussions. The academics involved in their study were asked to provide a photograph of their design studio space intended to contribute towards the visual narrative. This approach has been adopted in this study in order to make visual comparisons between the learning environments within the various design disciplines within the same academic institution. Photographic based evidence captures a visual aspect of a ‘real-life’ situation and can provide a visual context for discussion. Elliot (1996, p.78) discusses the importance of capturing visual representations within educational research, focusing on the physical layout of the learning environment and how students interact within the studio space. The main motivation for including photographs of the physical learning environment in this study was to allow for comparisons to be made between the various studio settings across the different design subject areas within the same school. Each learning environment was discussed during the academic interviews in relation to the physical size of their teaching space and the flexibility of their designated facilities. The flexibility of the space is an important factor when creating an appropriate environment to encourage students to feel comfortable in their learning. Recruiting large student cohorts has a direct impact on how the studio space is utilised, often resulting in repeat teaching and dividing the year group into smaller class rotations.

3.6 Validity and Reliability

Kumar (2005, p153) emphasises the importance of the quality measures in research results, these pass through a series of stages that include: the selection of a sample, collection of data, application of statistical procedures and writing up the findings. Kumar summarises validity as the ability of an instrument to measure what it is designed to measured; has the researcher measured what they set out to measure? Due to the scale of this qualitative research study the

emphasis on validity is much less crucial to these research findings as there is much less emphasis on complex testing and detailed measures.

The undergraduate questionnaire is designed to specifically measure the opinions of the design students learning experience. The sample of participants had all encountered the same program of study ensuring that the responses were based on a shared experience. The focus group was an extension of the undergraduate questionnaire; the sample of students was taken from those who participated in the initial questionnaire. The intention for the focus group was to explore the questions that were included in the questionnaire but in greater depth. The academic interviews are focused on the design tutors perspective on teaching within one particular academic institution.

As with most types of research interviews and questionnaires are reliant on participants being truthful in their responses, particularly when they are being questioned about their personal experience and their emotional responses. It is important that participants feel comfortable in communicating their thoughts in both focus groups and interviews in order to form an accurate representation of the participant's experience. The interviews were conducted with academic staff all with a similar level of experience with practice-based design subjects. The structure of the interviews remained the same for each participant and were located in their familiar teaching environments. Robson (2002, p260) defines sampling as a selection from the population and is closely linked with the validity of the research methods.

According to Kumar (2005, p156) the reliability of research must endeavour to be consistent, dependable, predictable, stable and honest. There are a number of factors that need to remain consistent to control reliability, the wording of the questions, environment, and respondent's mood and nature of interaction with the participant. Reliability raises the question of, if the test is reproduced will the same results occur? For each of the methods in this investigation the reliability is

measured by the consistency of the data collection. The questionnaires were issued to a cohort of first year design undergraduates at the same time, in the same place and using exactly the same list of questions throughout the process. The sample of participants had all encountered the same program of study ensuring that the discussion was based on a shared experience. To maintain the reliability of the questionnaires they were designed in an accessible way that the undergraduates could complete them in a straightforward manner, as previously mentioned the *Likert* scale is said to be a desirable way of completing a range of questions. Equally Robson (2002, p293) describes the importance of making research appear appealing in order to attract a higher response rate increasing the reliability. It is difficult to apply reliability measures to interviews and focus groups as they are based on current opinion; the format of the research in this study remained consistent, however the findings would inevitably vary each time.

3.7 Ethics

May (2002, p59) defines ethics in social research as an attempt to formulate codes and guidelines of behaviour. It is critical that all the researchers and participants who are involved in the process are fully aware of the reasons for conducting the study rather than taking things at face value. Ethical codes of practice provides clarity and transparency to all involved in the study, all data must maintain anonymity. Denscombe (1998, p93) summarises confidentiality where respondents should be reassured that the information will remain anonymous and unavailable for public access. The data protection act must be adhered to in this type of research and must have informed consent.

Kumar (2005, p212) questions the reasons behind why participants should provide information to researchers, he identifies ethical considerations that make participants feel anxious and under pressure. It is important not to waste participant's time; research should be focused and have a clear purpose. Full details of the experiment and questionnaire were explained to the participants in

details prior to them consenting to the research study. The methods used in this research study have been piloted prior to the release of the main research allowing time for any necessary adjustments. A sample of the questionnaire, focus group and interview questions can be found in the appendices.

There are limited hazards and ethical considerations involved in completing questionnaires and structured interviews. Ruane (2005, p17) believes that research within social sciences do not have to adhere to the rigorous ethical guidelines compared with other fields such as pharmaceuticals and medical research. The methods involved in this study adhere to the ethical guidelines set by the university.

4. Analysis and Findings

4.1 Introduction

In this chapter the research results are discussed and analysed; any reoccurring themes and patterns in the findings are coded and explained in relation to the key aims of the study. The main aim of this research is to investigate the way that large student cohorts learn within art and design subjects in HE. The research focuses specifically on identifying current teaching practices along with an investigation into physical learning environments within the design school. The methodology discussed in the previous chapter outlines the main methods that are used to investigate this specific area of interest; the research is divided into two phases investigating academic and undergraduate perspectives. Firstly five design academics were interviewed individually, then a questionnaire was conducted with year-one undergraduates along with a supporting focus group. The research results generated by both the academics and undergraduates are discussed in parallel within this chapter; the two sets of findings are combined focusing on the comparisons, contradictions and similarities that occur.

Having been involved in the data collection it was important to view the results from a critical perspective. There was no preconceived idea of where the direction of the results would lead for both strands of research. The data collated is analysed and grouped into similar concepts in order to establish strong themes within the findings. The codes are specific to each of the individual research methods; the range of questions varies according to the research instrument however they all ultimately link to the main research question. Within the analysis the findings from the participants are referred to as academic tutors (AT) and undergraduates (UG); this coding differentiates the two research perspectives.

Having reviewed current methods of teaching and learning predominantly within the design subject area earlier in the literature review, this section will focus on

the analysis of both the academic and undergraduate responses. The first phase of the investigation began with five senior design academics lecturing within the same HE institution. The academics were selected on the basis of their experience of design teaching; each academic has recent experience of delivering comparable design modules to large year-one design cohorts. A series of seven pre-piloted questions were used to form the individual interviews, the questions were discussed in the same sequence for all five interviews. The range of interview questions can be referred to in appendix 3. Each participant was asked to supply a photograph of their learning environment; these were integral to the discussions surrounding their physical learning environments. The interviews were all conducted in their respective design studios; the purpose of this was to encourage the academics to be more critical about their studio space.

The second phase of the research analysis focuses on the findings collated specifically from year-one fashion design undergraduates. The purpose of including the undergraduate perspective is to gain an understanding of their recent learning experience in the design subject area; the data is used to compare against the findings generated from the academic interviews. The questionnaire data and the focus group transcripts are combined in the findings, the focus group elaborates on the data produced from the questionnaires. There were 45 completed and returned questionnaires; this was a fair response considering the scale of the research project, the questions can be referred to in appendix 4. The focus group consisted of eight year-one fashion design undergraduates, a range of six questions were discussed within a 30-minute time frame. The questions asked within the focus group can also be referred to in appendix 5 and key supporting statements are quoted within the following discussions. The participant responses gathered from the questionnaire and focus groups are integrated into the four key aims of the study. The statistical data is evidenced in a series of three cluster-column bar charts to indicate the response rate from the 5-point *likert* scale answers; these can be referred to in appendix 6.

The combination of the interview transcripts and statistical data extracted from the questionnaires were analysed in an attempt to code the data, the key themes that evolved from the findings appeared to link back to the four key aims of the research study. These will be discussed sequentially examining both academic and undergraduate views on teaching practice and the learning experience.

Four key themes:

- The impact of increasing levels of participation in the design subject area
- Art and design pedagogical practices
- Learning theories: experiential, problem-based and autonomous learning
- The physical learning environment; examining the design studio

4.2 The impact of increasing levels of student participation

The challenge that most academics are currently facing within the design subject area is facilitating teaching with large intakes of year-one students. When asking the question referring to how academics facilitate teaching large groups, the majority answered that they had to rely on repeat teaching. The number of students recruited per year fluctuates on an annual basis resulting in the need for flexible teaching strategies to accommodate the varying cohort sizes. Studio spaces are allocated specifically to each design course due to the specialist equipment; if the size of the student cohort increases the space cannot ultimately accommodate this. Amongst all the academic responses the reason for repeat teaching was because the cohort sizes are much higher than the actual capacity of the designated studio space.

AT1 - The room accommodates 25 students at anyone time so unless the groups are rearranged the groups could never all be in at once. The small groups of 6-8 students were shuffled up occasionally, however the 2 main groups of students could never be mixed due to complex timetabling.

AT5 – To accommodate large groups class sizes they are split down into smaller groups where teaching is more manageable and repeat teaching is involved, which can and does in some instances make teaching very repetitive.

The responses indicate that each design subject divides their cohorts of students into a minimum of two and a maximum of three groups to repeat teach. When one considers groups of three rotations it becomes increasingly difficult to timetable effectively as the module has to be delivered over multiple days. However AT3 who manages a cohort of 100 students, divides them into three groups and has multiple activities occurring within the same time frame.

AT3 - The full group is split into 3 smaller groups, A, B and C; they are rotated around in the same time frame. The students are rotated within one module, one group will do computer design, another will do physical work and the other will do after effects and after an hour they will rotate again.

This method appears to be a successful approach however it is only possible if sufficient physical teaching space is available and there is academic staff to facilitate the triple rotations. One of the academic's responses suggests that the teaching contact hours remained the same when the student cohort significantly increased; it could be argued that larger student groups are disadvantaged due to the tutor contact time being reduced.

In recent years design educators have been forced to reexamine the way the subject is delivered; in the past practical courses recruited far smaller student numbers that positively resulted in increased tutor contact time for each individual student. Schon (1991) afore mentioned academic research states that students studying in the early 1990's would individually spend approximately 20 minutes with their design tutor on a weekly basis to discuss their project work. In current teaching practice it appears that an effective way of discussing practical project work is to split the larger groups down into small groups of 6-8 students where discussions can take place amongst peers along with design tutor

intervention. This will be revisited in the next section where current pedagogical practices will be discussed in further detail.

4.3 Art and design pedagogical practice

This section focuses primarily on the academics accounts of their own teaching practices and the students reflection of their learning experiences. Powers (2010) and Gibbs (2013) both highlight similar issues of teaching large cohorts of students; they suggest that large-group teaching does not fit in with the active-learning approaches that are associated with design subjects. It appears that practical-based subjects should seek to achieve a blend of large-group sessions in order to reduce repetitive teaching commitments along with small group tutorials designed to offer tailored guidance for specific project work. Replacing the traditional one-to-one tutorial with small group discussions allows the students to openly discuss their ideas. All the responses gathered from the academics indicate that design subjects are moving towards this blend of delivering practical-based subjects. The knowledge that underpins the design subject is delivered using a formal approach that includes the full cohort and in addition smaller tutorials are facilitated to discuss individual project progression. The below quote from AT4 describes the teaching process applied on their course; there appears to be commonalities that occur in the responses from all 5 interviewees. This blended approach is supported by the research findings in Powers (2010) investigation into traditional versus non-traditional teaching methods in design subjects.

AT4 - The whole cohort attends an hour seminar, this is a stereotypical example of a lecture, and they come in and take notes whilst we go through examples and processes relating to industry practice and their project work. They are then asked to come back in groups for the rest of the day, they are split into 6 groups of 8 for groups tutorials for approx an hour and a half each group. There are 2 academics leading the tutorials for the day. This is plenty of time and the sessions don't tend to overrun. The hour long tutorial sessions tend to relate to the brief that they are working on and the students receive more individual feedback within a group scenario.

AT1 discusses a similar approach to AT4 however their course operates on longer project times; students receive weekly feedback within small group tutorials along with two additional opportunities to sign up for individual tutorials at key points in the project. AT1 believes the students appear satisfied with the weekly group feedback discussions, as the uptake on the optional individual feedback sessions is generally low.

AT1 - Individual tutorials were offered about twice a term so that students were able to discuss their work directly with the tutor. The uptake was pretty low for these tutorials, as they've been seen on a weekly basis.

As discussed in the literature review the importance of facilitating traditional lectures in design-based subjects could be seen as counter productive because it reduces the amount of studio-based learning time. In Cannamo et al's (2011) recent research they suggest that studio-based learning is paramount in order to replicate real-life industry practice; this is a valid point however year-one design undergraduates are not yet equipped with industry knowledge and still require the didactic form of teaching.

When the students were questioned about the effectiveness of the delivery relating to the design subject they generally agreed that the studio sessions were useful for their development (Q7) and 91% thought that the level of feedback is essential to their progression (Q11). A high percentage believed that the projects were pitched at a suitable level for their design ability (Q10) and they agreed that a detailed briefing at the start of design projects was beneficial to their success (Q9). The quality and content of the project briefings appear critical to the students success; placing more emphasis on the project requirements encourages the students to be more self-motivated and have more confidence in their decision making capabilities.

Conducting project briefings to the full cohort of students reduces the need for repetition reducing staff hours that can then be re-distributed to support other

areas of the project work. The students suggest that they work well within small peer groups (Q6); dividing the cohort into small groups means they could be rotated between the studio tutorial feedback sessions and focused group tasks utilising other physical and virtual facilities located on campus. The quote below emphasises the need for peer-group discussions to occur within the studio space; the flexibility of the timetable is important to ensure the cohort experiences a supportive program of study that develops the necessary skills throughout the process.

UG4 – I find the studio a good place to start a project, being able to sit within a group and discuss ideas easily.

It appears that another issue that occurs through teaching large student cohorts is the overall group dynamics; this is becoming more diluted as the student numbers increase. AT3 discusses group dynamics and how their course manages the varying learning requirements.

AT3 - The weaker students often avoid showing tutors their work and they slip into the background, so we have had to change the style of teaching to accommodate this. I've tried all sorts this year; I've tried elective study groups. You find that good students fly with their work and weaker students tend to stay in groups and remain negative about their work. I've tried all sorts to vary this; I've mixed them up and tried to offer multiple flexible teaching to accommodate the various levels. Some students just prefer the one to one tutorials and can't deal with groups situations, so why put them through it.

More practical considerations when teaching large cohorts of students are assessment and feedback strategies; it would appear that there are some interesting strategies emerging using technology for feedback methods. AT4 explains their feedback strategies; they have adopted a system called PRAG, this is an approach that is used predominantly within secondary education. AT4 highlights the reduction in assessment time through using this system; year-one students can only pass or fail on project work and they receive verbal sound recordings for formative feedback. At first-year level the students generally seek

feedback and reassurance; this appears to be a successful method of providing focused time-reducing formative feedback.

AT4 - We use a system called PRAG; purple, red, amber and green, it gives the students an idea of where they are in terms of levels. It derives from secondary education so some of them are already familiar with it prior to entering university education. It gives the students feedback on where they are at in a project and highlights strengths and weaknesses in the work they are producing. It cuts down on the students reading into their grades...what is the difference between a 36% and 38%?

AT4 - They get loads of verbal feedback. Work that they produce in the first term is submitted and the students receive sound recorded feedback. The sound recording get uploaded to unilearn and they can access their verbal feedback, this has been really successful with the students; they have commented on how useful to them this is.

One key suggestion made within the student focus group highlighted that feedback was important to their development; the quote below outlines the need for peer review and suggests an interesting anonymous feedback method.

UG3 – “The feedback is really good as we can discuss our work every week, we also have critiques at the end of all of our projects. Maybe in the critiques we could do anonymous ‘improvements’ and ‘good points’ where people could write comments about other peoples work, because it’s anonymous people would feel more confident in suggesting areas of improvement”.

This substantiates the need for ongoing peer review and academic support both during timetabled sessions and within self-directed study periods. On the whole self-awareness and confidence levels are improved through peer-led feedback session.

The points discussed in this section are focused around pedagogical practice; there is a degree of crossover into the next section where the application of learning theories is investigated.

4.4 Learning theories: experiential, problem-based and autonomous learning

The next code to evolve from the research findings has been categorised as learning theories; the focus of this section is to indentify how students actively learn within practical-based design subjects. Year-one design students not only have to learn specific industry-focused practical skills they also have to find ways to problem-solve and develop the ability to make independent design decisions.

The link between education and professional industry practice is discussed in the literature review; the notion of this is echoed throughout all the academic responses. Nationally design courses incorporate the idea of working in simulated studio environments in preparation for future employment. Students are educated to learn through experience and are encouraged to autonomously discover new concepts and ideas through trial and error, in order to build confidence and critical judgment of their own abilities. The afore mentioned Design Council's study into professional practice within UK design consultancies maps the design process in the 'double diamond' process model; interestingly AT4 refers to this theory in the interview. He explains how this professional model is embedded into their course program.

AT4 - The process that we follow is the design council's double diamond theory, this is the basis for pretty much every project that we do because it reflects industry practice and it links into the assessment criteria. They get graded on the basis of discover, define, develop, deliver, taken from the double diamond theory.

This explains how the product design course establishes the link from education through into industry; the four designs stages are clearly defined to ensure that the students fully engage with each stage of the design process. This statement supports the discussions surrounding experiential and problem-based learning cited in the literature review and applies to most undergraduate design programs nationally.

Design students are encouraged to work in the studios during their timetabled practical sessions; presenting their ideas and explaining their progression on a weekly basis supports the development of their work. It is important that weekly feedback sessions are scheduled during year-one; this occurs in varying forms throughout the degree program and continues into employment where design progress meetings are also scheduled on a weekly basis.

AT4 - It is very important that they receive the feedback on a weekly basis, as it is a progressive process. The verbal feedback is absolutely essential otherwise they might as well not turn up.

The design component within all the selected courses is one of the main modules with the highest credit weighting; generally when a module is central to the course it maintains a high level of attendance and creates a strong group dynamic.

AT1 - The areas that are more dominant on the course seem to attract more students and they have a much livelier atmosphere, for example the construction and the textiles areas are alive with students and things going on.

Design work at year-one level requires a degree of creative freedom; this encourages students who are new to the subject area to feel engaged with their studies as they are expected to make creative decisions. 82% of the respondents agreed they had been given creative freedom in their project work (Q12); working in the studios it has been observed that if design projects are over prescribed the students tend to loose interest and become disengaged with the subject.

Maintaining a creative working environment can be challenging at first-year level as students generally seek more guidance and direction on their project work.

The physical learning environment will be revisited in the next section, however a fundamental part of any design course is having a comprehensive range of resources available to access during each session. AT1 and AT5 discuss the importance of having appropriate resources in the design studio; this highlights

the demand for having an accessible base room in both scheduled and self-directed sessions.

UG1 - Having things that are relevant to each stage of the design process make the sessions valuable to the students progression, bringing research ideas etc, books, materials, fabrics, music, themed sessions.

UG5 – I try to engage students by introducing the session with a PowerPoint / objects of interest to study within the sessions; such as archived garments or other physical resources.

Having the relevant resources freely available to the students appears to be one of the major contributing factors in creating a productive working environment. Often due to departmental budgets resources such as subject specific design magazines and practical equipment can no longer be stored in the design studio. This can result in students needing to continue their studies in the library or at home and has a direct impact on group dynamics.

AT1 - It's about getting a balance, you will get students who would prefer to work at home or in the library and the weaker students who do come in but feel reluctant to show their work because of the level of it or the amount they have produced. They can come in and say they have forgotten their work and you will find that they have never done it or they just don't want to be in the session. I guess its part of the culture and getting the students to understand that they will have to work within a studio environment in the future.

Setting independent groups tasks where students are required to discover information for themselves and then disseminate back to the group could develop a learning culture that is less dependent on direct academic guidance. Virtual platforms such as Unilearn are useful in self-directed study time; this is a University approved portal where study information is accessible at all times and is very supportive when studying independently. 91% agreed they found it useful seeing work produced by their peers; sharing ideas on creative social media websites such as pinterest allows students to maintain momentum on their project work in their own time (Q14). Visual-based web resources such as

Pinterest and blogs can be embedded into Unilearn so that students are able to access a creative support network on their smart phones and devices. In contrast to online resources it is important that students also seek information from physical resources such as the library; the process of discovering appropriately sourced material helps to engage the student and develops learner autonomy. The results indicate that fashion design students regularly use the library resources and are likely to access online facilities to support their learning (Q8). Factoring in the extensive high-quality resources that are available in other spaces within the university helps to reduce the demand on the design studio.

There is a range of contributory factors for successful problem-based and experiential learning to occur within undergraduate design education. The research findings have highlighted the need for parity between industry practice and education. To encourage a lively and creative design studio, students should feel confident in what they are developing whilst being able to access the necessary equipment and resources. Pacing the program of work and setting regular deadlines should ensure that the cohort maintains a similar level of achievement; this encourages students to meet weekly deadlines and discuss the ongoing project requirements.

4.5 The physical learning environment; examining the design studio

The physical learning environment has a considerable impact on the delivery of practical subjects within design schools. This section of the research analysis focuses on the physical learning environment. The purpose of investigating the effectiveness of the studio environment is to examine how the year-one students feel they have developed their skills taking into consideration room configurations and group sizes. This section also considers the studio environment from the tutor's perspective, evaluating how teaching is facilitated from an academic perspective.

The photographs supplied by the academics were used when discussing the physical studio space; these can be referred to in Appendix 7. The five sets of studio images provided by each individual academic demonstrate the distinct differences between the teaching environments. The academics that had been involved in the planning of their studios were noticeably more positive when discussing their teaching space. They highlight best practice that occurs within their studios and emphasised how much both current and prospective students enjoy the space, adding that it positively contributes to their course recruitment.

AT3 - Yes the studio is fit for purpose, it works well for us and it is a big recruiter for the course. They like the look of it; it's modern and contemporary. We have got designated areas, two-thirds computers and a third physical space. To get the students to stay you have to have good community dynamic and excellent facilities.

The academics who had inherited their space or had little input into the planning of the space were quicker to point out the negative characteristics such as storage space, lighting, heating and the flexibility of the room. It was useful to conduct the interviews within each studio environment as this encouraged the academics to discuss their surroundings more openly. The two research strands investigate the suitability of the design studios and question how they accommodate the large cohorts of design students. The photographs informed the discussions surrounding the characteristics of the teaching environments providing a visual context of the studios being investigated.

When the academics were asked if their studio space was fit for purpose the general response was divided; some agreed their studio met their expectations and others suggested further improvements taking into consideration their course requirements. One of the key points mentioned in the interviews was the importance of flexibility within their learning environment; most of the studios are equipped with tables that can be reconfigured to accommodate timetabled seminars, tutorials and group critiques. The only exception to this was the fashion course where the tables have multiple uses; they are high-level tables

that are designed for pattern cutting and cannot be reconfigured for multiple teaching purposes. AT5 highlights this in the below quote as a potential problem, making it difficult to rearrange the furniture accordingly.

AT5 - It is very difficult to rearrange the layout, as there is often limited space and the studios have a multi-use for other practical-based modules. The tables are high-level tables used for pattern cutting. It would be beneficial to have an environment dedicated to design teaching to engage the students in the subject and so it can be distinctly separated between the different types of learning environment.

When the students were questioned on the aesthetics of the studio environment they suggest that the tables and chairs were too uncomfortable for long periods of time and the air-conditioning was erratic at times. The main contributing factors in making a design studio work successfully are the flexibility of the space and being able to divide the studio into various zones. The product design course appeared to have the ideal balance of studio space; the room includes a sound proof tutorial pod, a relaxed seating area, flexible teaching space and access to computers.

AT4 - Nothing is fixed in the studio apart from the banks of computers, so we have the flexibility to move furniture, which we do depending on what is being delivered.

The graphic design course also reacted positively when questioned about their studio space; the studio is very light and spacious and looks aesthetically impressive to prospective students. A similar approach towards the organisation of the space has been adopted by this course; the studio is divided into specific zones in order to facilitate their teaching and learning requirements.

The main issue that was frequently referred to in the interview responses across all the design courses was the capacity of their studio space; not one of the designated studios accommodates a full year-one cohort. This inevitably results in repeat teaching and the need for flexibility in the delivery of the practical-based subjects. As the courses have progressively increased in size the studio space

has remained the same, this appears to create a problem when planning the delivery of the subject. Schools within HE institutions that are prominently lecture-based generally have the flexibility to recruit higher student numbers due to capacity of large lecture theatres; practical-based subjects should limit the number of students enrolled onto a course as it seriously impacts the delivery of the subject.

AT4 - It is fit for purpose, the biggest problem that we have is the studio isn't big enough to take the full cohort of students; meaning that we have to repeat teach.

AT1 - The room accommodates 25 students at anyone time so unless the groups are rearranged into smaller groups the full cohort could never be in all at once.

Other areas of concern that were discussed in the interviews were lighting, sound, heating, storage space; these all impact fundamentally upon teaching, if these are not maintained at the correct level it can have a major affect on concentration levels and group dynamics.

AT2 - It's frustrating because the air con is very erratic so the students never feel comfortable. The lighting is frustrating it's too dark. Even if it just had the news on or a music channel, it would make it more inviting for students to use the space.

The colour used within the studios and the use of wall space was mentioned in the academic responses; they all highlighted the use of visual stimulus for the students to use as inspiration for their project work. The academics agreed that having examples of student work on the walls supports student's development, it also provides additional clarity on the work requirements. The focus-group highlighted the need for project inspiration being displayed on the wall space, it was suggested that work produced by a higher level would be beneficial to their progression.

UG1 - "The studio is a good space but the walls are empty there could be more inspiration on the walls".

UG2 - “Maybe a collection of previous students work such as a display of mood boards, collection line-ups and illustrations to help with initial ideas”.

AT4 discusses the use of colour in their studio; they use green on walls and furniture to promote creativity. The aesthetics of the studio environment can have a detrimental impact on student learning this is supported by Arora's (2013) interior colour theory.

AT4 - We use coordinated colour throughout the space and have selected green because it is said to promote creativity.

The colour of the space was not a consideration to the students; they indicated that white walls made the space appear larger. It is worth considering at this point that year-one students have little prior knowledge of any learning theories along with key factors that effect the teaching and learning experience. Aurora's (2013) interior colour theory is unlikely to be a consideration that would contribute to the focus group discussion. However the students did agree that music in the studios when producing practical work could improve the general atmosphere; working with sounds such as the radio in the studio replicates real-life industry practice.

4.6 Summary

The aim of this research was to investigate current teaching and learning practices across various design subjects to see if the findings could inspire innovative methods of delivering design subjects. The analysis of the findings suggests that a diverse blend of appropriate teaching and learning methods should be applied at first-year level. This is beneficial to year-one cohorts ensuring that they receive a varied range of contemporary pedagogical approaches. Careful planning can also be cost effective for the institution as the amount of repeat teaching could be reduced significantly. Whilst the academic

interview responses offered a wide range potential teaching and learning improvements, the year-one undergraduates appeared generally satisfied with their first year experience in the design module. It is apparent that academics are constantly seeking new ways of improving the delivery of their subject area adopting new technologies to improve feedback processes and implementing support systems that enhance the student experience. It would be interesting to conduct this academic interview process on a larger scale targeting other HE institutions to analyse the respective responses on a national level.

5. Conclusions and Recommendations

5.1 Aims

In a period of rapid change HE education is faced with ongoing challenges to reassess the way programs of study are delivered in order to meet learner expectations and provide degree programs that fundamentally secure future employment for undergraduates. The aim of this research is to seek innovative teaching and learning methods to accommodate the increase in student participation. Discovering effective methods of facilitating practical-based design subjects considering an ever-changing future generation of undergraduates is both beneficial to the student experience and will inevitably streamline academic practice.

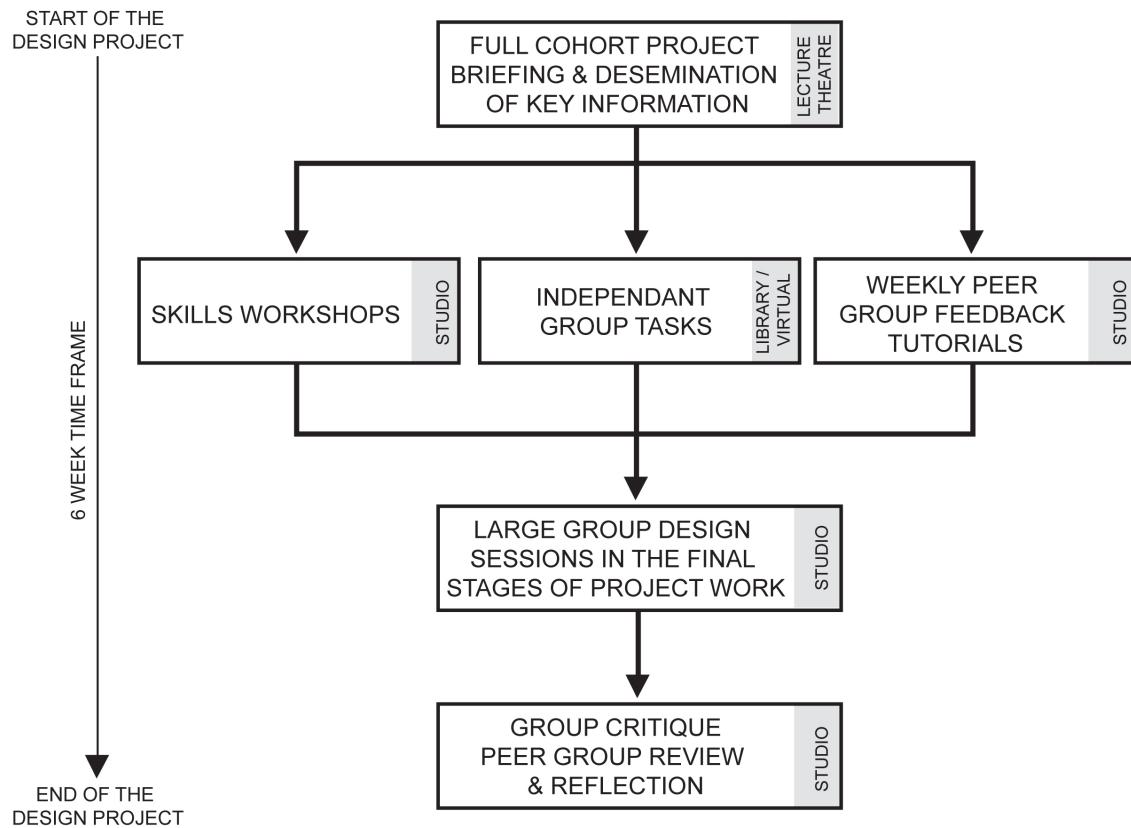
A review of the literature surrounding current issues arising within HE design education identifies key gaps in the facilitation of the subject. Research articles focused on current teaching pedagogies along with the physical learning environment are discussed in relation to evolving teaching and learning practices. Factors including increased design student cohorts, updated learning theories and the characteristics of design-studio environments are all outlined as key aims in this research study and could potentially influence future planning of design degree programs. The research conducted by Shreeve et al (2010) and Powers (2010) suggests that the delivery of practical-based subjects should incorporate a degree of flexibility; a blended approach of delivery methods appears essential to the learner's development. The combination of didactic teaching, group tutorials and workshops all form a well-balanced and supportive program of study; ideally the core subject knowledge should be delivered on mass and academic-led workshops and peer-group tutorials are offered as focused support.

Maintaining a high-level of creativity amongst year-one undergraduates is critical for successful learning, this could also be detrimental for progression throughout the degree programme as it fundamental to the subject specialism. A

combination of understanding the core theoretical knowledge and creatively exploring the subject requires careful planning, design projects should be pitched at the correct level, paced appropriately, have industry relevance and be delivered in an appropriate learning environment. Beaten et al (2012) and Shreeve et al (2010) both agree that creating a positive learning environment encourages both student and tutor motivation; when students engage in their studies they appear to take responsibility for their own learning. The literature reviewed suggests that vocational design subjects should mirror real-life industrial practice, this should reflect in the learning schedule and the studio environment.

Conducting the action research to investigate current teaching practice from both an academic and undergraduate perspective has provided an insight into how the subject is currently being delivered. The academic and undergraduate research emphasises the need for varying the delivery methods within design teaching. Key theories, topics and project details should be delivered adopting a didactic approach, in order to utilise tutor teaching hours. Supplementary skills workshops should ideally be timetabled throughout year-one and weekly small-group feedback sessions should be available for ongoing project support. The undergraduate design teaching process model shown below has been devised based on the information provided by the fashion design undergraduates and the design academics interview responses. The model takes into consideration the types of learning environments, various group divisions, and it outlines the critical processes involved in a six-week year-one design project.

Undergraduate design teaching process model



Interestingly the research findings gathered from the academic interviews mirror similar issues being discussed in current published literature. The main subjects of discussion include facilitating teaching to avoid repetition and the suitability of designated teaching environments. The design process model identifies where the additional tutor support is required throughout a six-week design project it also indicates that a formal approach to the delivery is essential at the beginning and end of the design process. Encouraging independent learning within project timeframes would inevitably release the pressures on the studio accessibility and would support the development of autonomous learning.

5.2 Recommendations

As a result of this research the recommendations to improve facilitating design-based degree programs has to include a flexible schedule of learning. Initially the first stage of implementation would focus on curriculum planning; reducing the amount of repetitive teaching within design modules would improve the overall quality of the subject being delivered, particularly when this is an area that is dominant on the program of study. In order to gradually implement change within specific design-based degree programs the emphasis should focus on managing academics teaching commitments. Considering the cost of higher education it is essential that undergraduates benefit from a high-quality learning experience; regularly re-evaluating how practical-based degree programs operate will account for educational and cultural changes. It appears that incorporating flexibility within course planning is essential when student recruitment is so unpredictable.

The learning environment is also a major contributory factor in the learning experience; academic tutors will need to take ownership of their studio spaces to replicate real-life industry practice. The implications of creating innovative learning spaces would inevitably motivate students and tutors. Ideally the capacity of designated studio environments could be large enough to accommodate full cohorts of students, this would significantly reduce the pressures on space utilisation. A long-term planning suggestion that has evolved from the research findings would be to adopt a business approach to the management of each degree programme, where each course maintains a regular recruitment figure. The recruitment figure could fluctuate on the basis of increased studio space and teaching hours. Research suggests that to successfully manage practical-based courses there must be an ideal balance between the studio capacity, allocated teaching hours and cohort sizes.

5.3 Professional and personal development

Conducting this research has been interesting from a course management perspective; by way of dedicating focused time to investigate current teaching practice contributions to implementing necessary change. To ensure that degree programs react to educational and cultural shifts there needs to be a period of reflection and consolidation. O'leary's 'Cycles of Research Model' (Koshy, 2010, p.7) outlines a cylindrical approach for improving practice; this incorporates an evaluation and implementation process. In a busy place of work where resources are limited and academic time is allocated to teaching and organisational commitments it is difficult to dedicate time to review and reflect on internal processes. Structuring this research study for the benefit and enhancement of future course planning sought consent from the senior management.

5.4 Dissemination

The findings and analysis of this research will be disseminated to the senior management team including the subject leader and Head of Department. The findings will contribute to streamlining teaching approaches, recruitment and retention, cost reduction strategies and course management. The findings will also be disseminated to those involved in the research, particularly the senior design academics who could benefit from the cross-discipline research. Finally the research findings will be discussed with the fashion design academic team at the annual course-planning meeting in preparation for future academic years; the research findings should contribute to the timetabling and planning of this specific degree program.

5.6 Suggestions for further research

During the research process and the review of current published literature there are a number of extended research projects that could potentially emerge from

this initial study. Firstly the academic interview responses and the undergraduate questionnaires highlight an interesting area for further research; this would involve a study into how social media communities support cohorts of students within self-directed study time. Initially this was included as a key aim within this research study however it became apparent that it is a much larger research investigation in itself that would potentially involve a very different outcome.

A larger-scale research study based on the academic interviews conducted in a range of HE institutions would provide more detailed findings on a national level. For this scale of research it would require funding and access to a range of UK based design degree programs. It would be interesting to focus this research investigation specifically on fashion design courses across a number of HE intuitions; the reason for selecting a range of comparable design courses for this study was due to the scale of research project.

And finally the last suggestion for further research that has evolved from the literature review would focus upon the varying levels of knowledge amongst design undergraduates. Powers (2010) touches upon this in her recent journal article, suggesting that the varying levels of knowledge at foundation-level needs to be considered when planning the type of academic support that is required when undergoing practical project work. This area of research would focus on international recruitment alongside the range of varying entry-level skills covered by national pre-degree qualifications. This suggested research investigation would be an extension of this research study and it would provide more detailed background data concerning the level of support required at year-one entry level.

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Appendix 1

University of Huddersfield
School of Education and Professional Development

Participant Consent Form (E4)

Title of Research Study: An Investigation into the Impact of Learning Environments and Teaching Large student cohorts with Design Subjects at HE Level

Name of Researcher: Kathryn Brennand
Participant Identifier Number:

- I confirm that I have read and understood the participant Information sheet related to this research, and have had the opportunity to ask questions.
- I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.
- I understand that all my responses will be anonymised.
- I give permission for members of the research team to have access to my anonymised responses.
- I agree to take part in the above study

Name of Participant:

Signature of Participant:

Date:

Name of Researcher:

Signature of Researcher:

Date:

Appendix 2

School of Education and Professional Development, University of Huddersfield

APPLICATION FORM FOR RESEARCH ACTIVITY REQUIRING HUMAN RESEARCH ETHICS CONSIDERATION OR APPROVAL (E2)

FAILURE TO GAIN SEPD ETHICAL APPROVAL FOR YOUR RESEARCH MEANS
THAT YOUR PROJECT MAY BE FAILED AND/OR THAT YOU ARE SUBJECT TO
DISCIPLINARY ACTION

Student Name/Number KATHRYN BRENNAND / U0866926	Course / Year MA Professional Development
Student University Email Address U0866926@unimail.hud.ac.uk	CRB check completed (give date) N/A
Module DMX0160 - Dissertation	
Title of Research Project / Study An Investigation into the Impact of Learning Environments and Teaching Large student cohorts with Design Subjects at HE Level	
Start date for the project September 2013	Expected end date for the project July 2014
Brief description of proposed activity and its objectives (e.g. numbers involved, research location/s). Be specific about any involvement of young people, or research around illegality or activity at the margins of the law:	
1. Academic interviews Participants: Senior design academics Date: April 2014 Number of Participants: 5 Location: University of Huddersfield	
2. Undergraduate questionnaires Participants: Year-one undergraduate Date: May 2014 Number of Participants: 45 Location: University of Huddersfield	

3. Undergraduate focus groups

Participants: Year-one fashion design undergraduates

Date: May 2014

Number of Participants: 45

Location: University of Huddersfield

Ethical issues identified:

1. Participants must fully understand the research intentions
2. Not wasting participants time

How these will be addressed:

1. Participants will be asked to sign a consent form and read the research descriptor
2. Pre-testing interview question and piloting questionnaires

Will this proposal involve any health and safety risks to yourself or others? (e.g. lone working in unsafe locations) Is a formal Risk Assessment needed?

None

Checklist for applicant:

1. Have you attached a draft of your Participant Information Form?
2. Does that Participant Information Form have the name and contact details of your University Supervisor on it?
3. Does that form clearly state that your research is part of your studies at the University of Huddersfield?

Indicate the statement/s relevant to your research.

I have read and understood [please indicate the relevant framework]:

- BERA Ethical Guidelines for Educational Research (2011)
- BASR ethical guidelines for research
- Code of Ethics for Social Work and Social Care Research (2002)

Student Undertaking

I hereby confirm that I will conduct my research in line with the guidelines indicated. I also confirm that I am proposing to undertake this research project in the manner described. I understand that no research activity should start until consent is granted. I understand that once consent is granted, I may not make any substantial amendments to this project without further consent – for example in widening or changing the participant group or significantly changing a questionnaire. I also understand that if I infringe the terms of this approval, my work may not be marked, and the study / dissertation would have to be repeated.

If appropriate, issues of professional suitability may be raised.

Signature of Researcher / Student: _____ Date: _____

Authorisation

Signature of Supervisor: _____ Date: _____

Appropriate Authorising Signature: _____ Date: _____

This form will be retained for the purposes of assurance of compliance and audit for the duration of the research project and five calendar years thereafter.

Appendix 3

University of Huddersfield

School of Education and Professional Development

Participant Information Sheet (E3)

You are being invited to take part in a research project. Before you decide it is important for you to understand why this research is being done and what it will involve. Please take time to read the following information and discuss it with others if you wish. Ask if there is anything that is not clear or if you would like more information. May I take this opportunity to thank you for taking time to read this.

The research project is intended to provide the research focus for a Dissertation on the MA in Professional Development. It will attempt to investigate the changing teaching and learning needs within design based degree programs. The interview will provide information about the physical learning environment and how design subjects can successfully delivered within higher education.

You have been chosen to complete this questionnaire because you have now completed the year one programme of study within fashion design. The questionnaire shouldn't take more than 30 minutes of your time.

Participation on this study is entirely voluntary, so please do not feel obliged to take part. Refusal will involve no penalty whatsoever and you may withdraw from the study at any stage without giving an explanation to the researcher.

There should be no foreseeable disadvantages to your participation. If you are unhappy or have further questions at any stage in the process, please address your concerns initially to the researcher if this is appropriate. Alternatively, please contact the research supervisor Susan Sheehan School of Education & Professional Development, University of Huddersfield.

All information which is collected will be strictly confidential and anonymised before the data is presented in the Dissertation, in compliance with the Data Protection Act and ethical research guidelines and principles.

The results of this research will be written up in a Dissertation and presented for assessment in July 2014 If you would like a copy please contact the researcher.

The research supervisor is Susan Sheehan They can be contacted at the University of Huddersfield.

Name & Contact Details of Researcher:

Susan Sheehan

s.sheehan@hud.ac.uk

Interview questions for design academics

Academic interview details

Date: April 2014

Location: University of Huddersfield

Number of participants: 5

1. How do you teach the design component of your course to large year groups and do find that you have to repeat teach?
2. How are you able to discuss design projects with each individual student on a weekly basis?
3. How does you feel it is important that students receive weekly feedback on their project work?
4. Is your studio fit for purpose or can you rearrange the layout so it is fit for purpose?
5. How do you make your studio appealing to the students so that they stay and use the space?
6. Does your studio comfortably accommodate a full year group of students? (If not how do you get around this?)
7. How do your students use social media to discuss their project work out of timetabled sessions, for example facebook, twitter, pinterest, instagram?

Appendix 4

YEAR 1 FASHION DESIGN STUDIES QUESTIONNAIRE

You are being invited to take part in a research project. Before you decide it is important for you to understand why this research is being done and what it will involve. Please take time to read the following information and discuss it with others if you wish. Ask if there is anything that is not clear or if you would like more information. May I take this opportunity to thank you for taking time to read this.

The research project is intended to provide the research focus for a Dissertation on the MA in Professional Development. It will attempt to investigate evolving teaching and learning needs within design based degree programs. The questionnaire will provide information about the physical learning environment and how design subjects can be successfully delivered within higher education.

You have been chosen to complete this questionnaire because you have completed the year one program of study within fashion design. The questionnaire shouldn't take more than 15 minutes of your time.

Participation on this study is entirely voluntary, so please do not feel obliged to take part. Refusal will involve no penalty whatsoever and you may withdraw from the study at any stage without giving an explanation to the researcher.

There should be no foreseeable disadvantages to your participation. If you are unhappy or have further questions at any stage in the process, please address your concerns initially to the researcher if this is appropriate. Alternatively, please contact the research supervisor Susan Sheehan School of Education & Professional Development, University of Huddersfield.

All information which is collected will be strictly confidential and anonymised before the data is presented in the Dissertation, in compliance with the Data Protection Act and ethical research guidelines and principles.

The results of this research will be written up in a Dissertation and presented for assessment in July 2014, if you would like a copy please contact the researcher.

The research supervisor is Susan Sheehan They can be contacted at the University of Huddersfield.

Name & Contact Details of Researcher:
Susan Sheehan
s.sheehan@hud.ac.uk

Part 1 – Design environment questions

1 - The design studio is an appropriate space for my timetabled studies?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

2 - I work productively in the design studio?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

3 - The size of the studio is appropriate for my year group?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

4 - I generally work within the same group of people in the timetabled sessions?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

5 - The studio sessions are useful in the development of my work?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

6 - I regularly use the library resources?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

7 - I use social media to exchange ideas with others in my year group?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

Tick all that are appropriate:

Facebook

Twitter

Snap Chat

Pinterest

Email

Text

Other (please specify)

8 - What are the positive characteristics of the design studio?

9 - How would you improve the design studio environment?

Part 2 - Design process questions

10 - New design projects are well explained from the start of the project?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

11 - The design projects are intellectually stimulating?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

12 - I have creative freedom in the design projects that we have worked on?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

13 - Weekly tutor feedback helps me to improve my work

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

14 - I find it useful to discuss creative ideas with other group members?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

15 - The work requirements for this module are manageable?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

16 - Seeing other peoples work is useful within timetabled sessions?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

17 - I am good at managing my workload on a weekly basis?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

18 - I have received sufficient help and advise on my design projects?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

19 - I feel my work has progressively improved throughout the first year of my studies?

STRONGLY AGREE

AGREE

NEITHER AGREE OR DISAGREE

DISAGREE

STRONGLY DISAGREE

20 - The project I have enjoyed most is:

1 – CHANGING PERSPECTIVES

2 - MILLENIUM

3 - BONES

4 – REINVENT & RESTYLE

21 - Why is this your preferred project?

22 - Suggested improvements to the module?

Appendix 5

Focus Group details

Date: 19/05/2014

Location: University of Huddersfield

Number of participants: 8

Year 1 focus group questions

1. Do you find the design studio a good place to work?
2. What changes would you make to the studio space to make it a more inspiring and productive place to work?
3. What challenges have you found with regard to the design module this year?
4. What would be your ideal way of learning the design subject?
5. Do you feel like you have received enough feedback throughout the module in order to develop your skills?
6. Which design project have you enjoyed most and why?

Appendix 6

Undergraduate questionnaire details

Date: May 2014

Location: University of Huddersfield

Number of responses: 45

Undergraduate questions and data analysis

1. The physical learning environment: examining the design studio

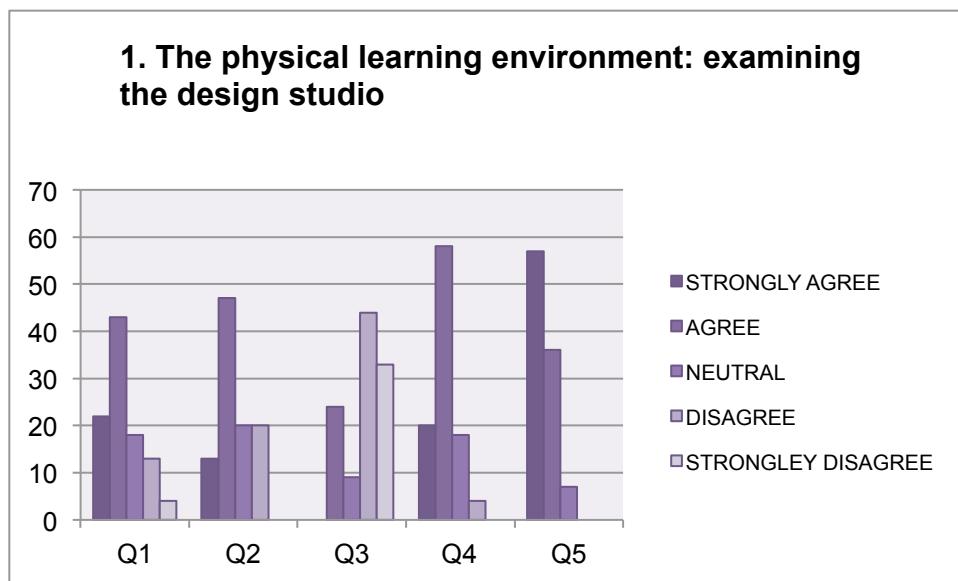
Q1 - The design studio is an appropriate space for my timetabled studies?

Q2 - I work productively in the design studio?

Q3 - The size of the studio is appropriate for my year group?

Q4 - The work requirements for this module are manageable?

Q5 - I feel my work has progressively improved throughout the first year of my studies?



2. Art and design pedagogical practices

Q6 - I generally work within the same group of people in the timetabled sessions?

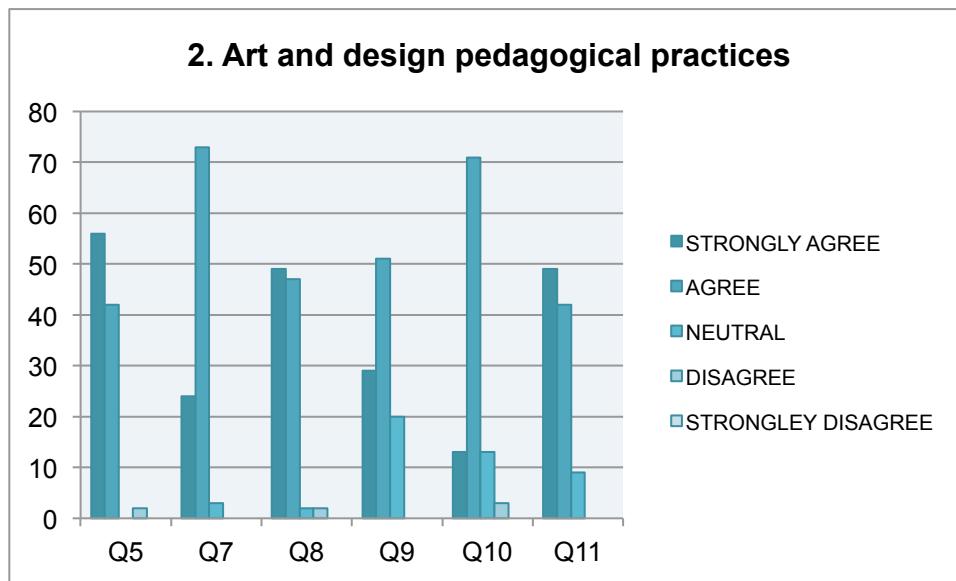
Q7 - The studio sessions are useful in the development of my work?

Q8 - I regularly use the library resources?

Q9 - New design projects are well explained from the start of the project?

Q10 - The design projects are intellectually stimulating?

Q11 - Weekly tutor feedback helps me to improve my work?



3. Learning theories: experiential, problem-based and autonomous learning

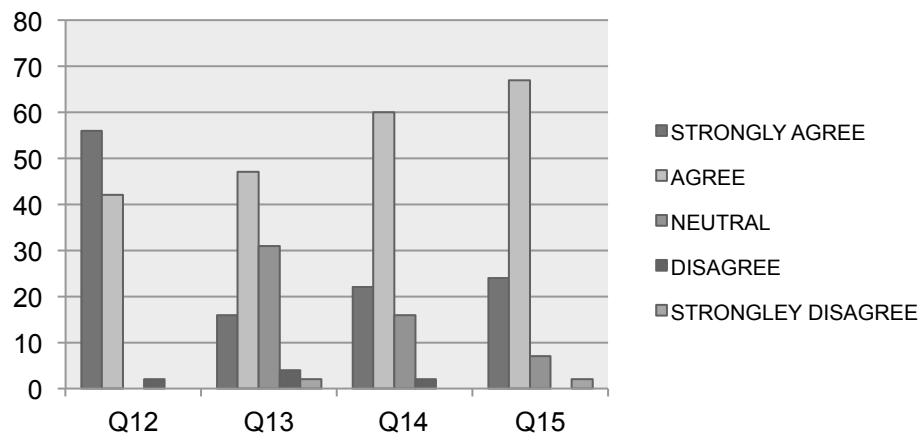
Q12 - I have creative freedom in the design projects that we have worked on?

Q13 - I find it useful to discuss creative ideas with other group members?

Q14 - Seeing other peoples work is useful within timetabled sessions?

Q15 - I generally work within the same group of people in the timetabled sessions?

3. Learning theories: experiential, problem-based and autonomous learning



Appendix 7

Photographs of the undergraduate design studio environments provided by senior design academics

Date: April 2014

Location: University of Huddersfield

1. Costume Design Studio



2. Fashion Communication and Promotion studio



3. Graphic Design studio



4. Product Design studio



5. Fashion Design studio

