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A Digital Learning Experience in Tertiary Design Education

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Introduction

This paper documents the results of a study of trialing an innovative teaching method to first year students who were studying for a BA in Visual Merchandising and Display in an Institute of Technology in Dublin. It was hoped that an innovative method of delivering practical tuition would be beneficial to students and lecturers from both learning and teaching perspectives. An Action Research approach was taken, which took the form of trialing a digital artefact, compiled by one of the authors, Knott (2013), as a teaching tool. The artefact consisted of an iBook; which contained step-by-step interactive instructions on how to complete practical visual merchandising and display tasks. An iPad was made available in the studio for students to access the iBook during practical sessions. Students accessed the iBook during class time to refer to the correct practical steps to take rather than wait for the tutor. The aim of this project was to research the learning of the students to ascertain the benefit of interactive digital learning for this student cohort**.** This generation of students is known as Generation Y, born between the early 1980s to the early 2000s; they are highly connected, having had a lifelong use of communication and media technology such as the Internet, instant messaging, text messaging and mobile phones. Prensky (2001) coined the phrase 'digital native' to describe Generation Y students, explaining they represent the first generations to grow up with this new technology; this group is also referred to as the Net Generation.

During semester one of the academic year 2012/2013, the first year BA in Visual Merchandising and Display students were given a demonstration of the digital artefact and were asked to spend some time examining the iPad and the iBook. Students were then asked to voluntarily complete an initial survey (Appendix 1) on the validity of the digital artefact as a teaching method. The survey involved the collection of data from students regarding their individual opinions on whether or not they felt this mode of learning would work for them. The conclusive feedback from the initial study indicated that opportunities for digital learning could enhance the

students overall learning and retention experience, and could encourage learners to develop. From the initial feedback it was decided to trial the iBook and continue the research in the second semester and to collect further data (Appendix 2). In this further study students actively used the iBook as a learning tool, data collected shows the students were enabled to exceed their creative and theoretical learning of the course. From a tutoring perspective it took less time to deal with individual problems as students could refer to the iBook and therefore freed time in the class for immediate feedback.

Rationale

The rationale for conducting this research was that due to lowered lecturing staff levels and heavily weighted teaching hours, a different approach to attaining learning outcomes was neccessary while teaching a practical based subject in an Institute of Technology in Dublin. It was observed by the lecturer that fundamental visual merchandising and display principles were not being allocated the required amount of practical class time and time for feedback for students to fully grasp these concepts.

> *'An appropriate, challenging level of difficulty, and enable successive refinement by allowing repetition, giving room to make and correct errors and provide informative feedback to the learner*' (Van Gog, Ericsson, Rikers and Paas, 2005, p.75)

It was hoped innovative methods of delivering practical tuition to this student cohort would be of increased benefit to them and to the lecturers from both a learning and teaching perspective. As part of the Net Generation it was believed the students would readily grasp the use of digital media in their learning. *Our students have changed radically. Today's students are no longer the people our educational system was designed to teach* (Prensky, 2001, p.15). Having been raised in an age of media saturation and convenient access to digital technologies, Net Generationers have distinctive ways of thinking, communicating, and learning (Oblinger and Oblinger 2005; Prensky 2006; Tapscott 1998).

Prior to 2011, practical classes took the form of physical demonstrations in a studio by the lecturer, this was followed by the students implementing the demonstrated techniques in twelve life size display windows. The class of approximately 24 was divided into two groups of twelve, each group having one, three hour session per week, with each student allocated their own window space. However, since September 2011, due to staff retirements and recruitment embargos, the class now functions as one group of approximately 24 students with three hours per week allocated to one session. Due to time and space constraints the students were being allocated half the previous amount of time for implementation and feedback from the tutor. The fundamental practical skills of Visual Merchandising and Display are used internationally and are an important aspect of the programme. Although seemingly Behavourist, these fundamentals must be grasped and understood by the students as they are the foundations of their knowledge and the bedrock from which they build their creativity. They need to know and understand the rules so they may in future be able to break them.

> *"Before novices take on more than they chew, it is always wise to understand the basic rules. Once this valuable knowledge is instilled in them, they will have a deeper understanding of the ethics behind designing a window and how best to capture the publics attention"*
> (Morgan, 2008, p.70).

As regards textbooks, due to the visual nature of the subject, they tend to be aimed at the coffee table market rather than the world of academia, Window Display: New Visual Merchandising (Morgan, 2010), Windows (Portas, 2001), Retail Desire: Design and Display and Visual Merchandise (Tucker, 2003). The seminal textbook, widely used in industry for the training of visual merchandisers, is 'Silent Selling' (Bell & Ternus, 2011). Although this textbook was an invaluable asset in aiding the compiling of the material covered in the course, it is cumbersome and awkward to use. The Net Generations learn differently from their predecessors, they are unique in that they are the first to grow up with digital and cyber technologies. Not only is technology part of their culture they are saturated with it. By the time he or she has reached 21 years of age, the average Net Generationer will have spent:

- 10,000 hours playing video games,
- 20,000 hours on e-mail,
- 20,000 hours watching TV,

- 10,000 hours on cell phones, and
- under 5,000 hours reading (Bonamici, Hutto, Smith & Ward, 2005).

Glenn (2000) notes that alongside multiple forms of feedback, and assignment choices Net Generationers need self-directed learning opportunities and interactive environments. The digital artefact was created as part of an MA in Creative Digital Media and consists of an iBook on Visual Merchandising and Display techniques. The iBook offered text content in each chapter alongside interactive illustrations on the fundamentals of the subject. Due to the interactive nature of the iBook, it was felt that it would appeal to the students, both in novelty and by emulating the use of their touch screen phones. Another benefit of using the iPad versus a textbook was that it could, if necessary, be connected to a projector and screened to the entire class. Although the students also attend Theory of Visual Merchandising lectures, the practice-based class is where students use cognitive methods such as Practice Effects where retention happens by doing. The importance of active learning is something that has been recognised for a long time. It is eloquently summed up in the ancient Chinese proverb;

Tell me and I'll forget
Show me and I may remember
Involve me and I'II understand.

Hay (2000) believes that Net Generation students want more hands-on, inquiry-based approaches to learning. Tapscott (1998) argues that this shift to a more independent learning style has grown out of the ingrained habits of seeking and retrieving information from the Internet, which marks a striking contrast to previous generations of students, who tended to acquire information more passively from authority figures. Tapscott further states that most Net Generation learners prefer to learn by doing rather by being told what to do, learning well through discovery—by exploring for themselves or with their peers. This exploratory style enables them to better retain information and use it in creative, meaningful ways.

The practical sessions form the basis of the students knowledge for designing and installing window displays, the first year and second year students design and install a total of five window displays per academic year. According to Gardner's

research on multiple intelligences (1983, 1993, 1999), the two intelligences the practical classes engage are the Kinesthetic Intelligence and Visual-Spatial Intelligence. Kinesthetic intelligence entails the potential of using one's whole body or parts of the body to solve problems. Under this style are people who learn best through physical activity such as dance, hands-on tasks, constructing models, and any kind of movement. They are able to manipulate and control objects. Visual-Spatial intelligence refers to the ability people have to learn visually by organising their thinking spatially. Oblinger & Oblinger (2004) argue the Net Generation is more comfortable in image-rich environments than with text and therefore high in visual and spatial skills. Presky (2001) states that students raised with computers deal with information differently compared to previous cohorts, they develop hypertext minds. A linear thought process is much less common than the ability to or piece information together from multiple sources. Among other differences are their:

- **Ability to read visual images**—they are intuitive visual communicators
- **Visual-spatial skills**—perhaps because of their expertise with games they can integrate the virtual and physical
- **Inductive discovery**—they learn better through discovery than by being told
- **Attentional deployment**—they are able to shift their attention rapidly from one task to another, and may choose not to pay attention to things that don't interest them
- **Fast response time**—they are able to respond quickly and expect rapid responses in return.
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Oblinger and Hagne's (2005) findings indicate a greater desire for active, engaged learning experiences among Net Generation students; they observe that Digital Age students express a need for more varied forms of communication and report being easily bored with traditional learning methods. With technological developments moving so rapidly since 2007 we have seen the technology of the touch screen smart phone and the tablet. A survey of 1,000 adults (Eircom Household Sentiment Survey, 2013) in Ireland has found that more than 1.6 million people now have a Smartphone. The authors estimate that based on people's buying intentions, there will be 1.2 million tablet owners by the end of 2013.

Methodology

'Action research is an intervention in personal practice to bring about improvement' (McNiff, Lomax and Whitehead, 1996, p.16) and it was decided the method best suited for this research. A detailed view of whether digital media was the best way to teach the fundamentals of visual merchandising and display was needed; therefore a mixed methods approach of collecting both close-ended quantitative data and open-ended qualitative data proved advantageous to best understand the research problem (Cresswell, 2003). Attention was given to the order of the research questions and hypotheses. The first survey of the student cohort involved in this trial took place in semester one of the academic year 2012/2013, the questions of this survey were worded to ascertain whether or not the students wished to have access to the iBook iduring practical class sessions. The data was analysed and due to the results of the survey (Appendix 1), it was decided to continue with a longer and more indepth practical trial of the iBook. An iPad was requested from faculty to use as a teaching tool and became available in January 2013. At the start of the second semester, the student cohort were given further instructions on how to use the iBook by the author, Knott. For this initial session, the iBook was projected on to a large screen so the class group could visually follow the instructions. Using the step by step instructions available they were able to physically replicate what was on the screen into their studio window displays. Following on from this initial class, the digital instructions were no longer projected on to the screen, however the iPad was available on a desk in the studio. Students were given a theory lecture at the beginning of the class and were then requested to replicate the instructions in the iBook in practice. In some of the classes the students were divided into groups in others they worked individually. Further data on how useful the iBook was in their learning was collected in May 2013 (Appendix 2).

Knowles (1975) states that the teacher relinquishing a great deal of authority and becoming a facilitator falls into the social constructive method of teaching. He argues there is convincing evidence that people who take the initiative in learning (proactive learners) learn more things, and learn better, than do people who sit at the feet of teachers passively waiting to be taught (reactive learners).

> *"They enter into learning more purposefully and with greater motivation. They also tend to retain and make use of what they learn better and longer than do the reactive learners."*(Knowles, 1975 p.14).

Findings

The project consisted of two phases, which took the form of a presentation, a survey, a further survey and analysis of data, which followed a trial of the iBook. Permission to issue the surveys was sought and granted from the Head of Department. First year design students were requested to volunteer to complete the first questionnaire during the first semester. Ethical issues considered in the research process consent and confidentiality, the researchers relayed all the important details of the study, including its aims and purpose. The confidentiality of the participants was also ensured and ethnicity, gender and age were not a factor. During semester one the BA in Visual Merchandising & Display students were given a demonstration of the iBook by the author, after the demonstration students were requested to examine and engage with the iBook. They were then asked to answer a questionnaire, this initial questionnaire surveyed students on how they perceived the usefulness of an interactive digital iBook would be in learning the fundamentals of window display and visual merchandising. This student sample consisted of fifteen students studying the BA in Visual Merchandising & Display. Completion of the questionnaire took approximately ten minutes.

The survey contained mostly qualitative questions and also asked for participant's comments therefore gathering quantitative data, the answers being strongly disagree, disagree, agree, strongly agree or don't know. One question gathered quantitative data; any other comments you would like to make regarding the interactive iBook and how it might help support student learning. It was intended that the results from this questionnaire would show if using the interactive digital iBook would benefit the students in learning the fundamentals of window display and visual merchandising. The second questionnaire gathered quantitative and qualitative data and was designed to show how students perceived the learning benefits after using the iBook over a number of weeks. The format for answering the questions was kept the same as the initial data-gathering questionnaire. The data was analysed and led to a

discussion on whether or not the hypotheses ‘an interactive digital iBook would be beneficial to both students and lecturers from learning and teaching perspectives’ has been tested and what were the results.

The first questionnaire that took place in semester one of the academic year 2012/2013 was taken after a demonstration of the iBook and a short time handling the iPad. The questionnaire was devised to attain data from design students on their perception of the usefulness of an interactive digital artefact and whether or not it should be introduced into studio time. 100 percent of the participants agreed, the interactive iBook was a simpler way to explain the fundamentals of window display, store design and visual merchandising. Falling under the category of Net Generationers 100 percent of the students disagreed with the statement the navigation of the iBook was difficult as a learning tool. 100 percent of the students disagreed that they would prefer hard copy books from the library to learn the design fundamentals. 90 percent of students agreed, they gained more knowledge from using the interactive iBook than attending lectures. 100 percent of students strongly agreed, the text content was concise and to the point. Surprising information was attained when asked if they had discovered new methods of designing with 70 percent agreeing they had. 100 percent of students strongly agreed, they would like to see the interactive iBook used as the basis for studio lectures. The students were then asked to select the most useful learning tools the iBook offered over traditional lectures, the findings showed; 100 percent rated the three-dimensional models as the most useful tool with 80 percent rating the animated tutorials as the second most useful tool.

The conclusions from the initial trial found that all students taking part in the survey preferred to learn via a visually based interact book rather than lectures alone and hard copy books with text and illustrations. The qualitative question; ‘any other comments you would like to make regarding the interactive iBook and how it might help support student learning’ found the animated tutorials and the three-dimensional animations as particularly innovative and useful as learning tools with comments such as *‘I have a few learning disabilities so it is much easier to take it in’* and *‘it’s more concise than what you would learn in a lecture’*. International and foreign national students stated ‘*I found it simpler to learn from the interactive animated assets*

instead of lectures and books based on text' and '*when you miss lectures it's convenient, you don't feel like your falling behind with work'*.

The second questionnaire took place in semester two of the academic year of 2012/2013 after the iBook had been in use over a number of weeks and was devised to attain data from the design students on how they perceived the learning benefits after using the interactive digital iBook. This student sample consisted of sixteen students studying on the BA in Visual Merchandising & Display. Filling out the questionnaire took approximately ten minutes. The survey contained qualitative and quantitative questions, the answers being strongly disagree, disagree, agree, strongly agree or don't know. When asked if using the interactive iBook is a simpler way of learning the fundamentals of window display and visual merchandising; 12 percent strongly agreed, 69 percent agreed and 19 percent disagreed. When questioned if they found the navigation of the iBook difficult; 19 percent disagreed, 56 percent disagreed strongly, and 19 percent agreed and six percent didn't know. On surveying the students if they preferred hard copy books from the library to the interactive iBook; 50 percent disagreed, 38 percent agreed, six percent strongly agreed and six percent didn't know. On questioning the students if they gained more knowledge from using the interactive iBook than attending lectures; 43 percent disagreed, 39 percent agreed while 18 percent didn't know.

Twelve percent of the student cohort surveyed disagreed, 44 percent agreed, 31 percent strongly agreed and 13 percent didn't know, when asked if using the iBook helped them understand how to assemble a window display and implement a visual merchandising scheme in a more structured way. On being asked if they found the text information concise and to the point; seven percent disagreed, 69 percent agreed, 12 percent agreed strongly and 12 percent didn't know. When questioned if they had discovered new ways of assembling window displays and implementing visual merchandising schemes using the interactive iBook; 12 percent disagreed, 63 percent agreed, 19 percent agreed strongly and six percent didn't know. When asked if they would like the interactive iBook used as the basis for studio lectures; 25 percent disagreed, 56 percent agreed and 19 percent agreed strongly. The qualitative question; 'any other comments you would like to make regarding the interactive iBook and how it might help support student learning' showed how the Net Generationers engaged

with the interactive technology making comments such as '*I think it's pretty easy to understand, especially for people who have learning disabilities'* and '*I found it very effective and to the point but easy to follow, I really liked it'.* The importance of using the interactive iBook as part of the programme curriculum was described by students as *'should be used as part of learning'* and *'more time using the iBook may build my confidence with it'.*

Analysis

The data collection from the initial survey in semester one details the student's opinions of the potential use of the digital artefact, the data collection from the second survey details the student's opinions having used the digital artefact in studio practice in semester two. The initial answer to the question on whether the iBook was a simpler way to learn the fundamentals of visual merchandising was 100 percent agreement, after use of the iBook, 81 percent still agreed with this statement with 19 percent disagreeing. Regarding the question of the difficulty of navigation of the iBook, initially 100 percent believed it was not difficult, in the second questionnaire on using the iBook 75 percent still agreed with this statement, with 19 percent finding it difficult, however 81 percent agreed they found the text information concise and to the point. When deciding to trial the iBook with the student cohort, it was requested that two iPads' be made available for class usage, as it was believed this would be the minimum number required to enable usage by the 22 students enrolled in this year, however due to monetary constraints, one was provided. The access to only one iPad among the class may have adversely affected whether or not they found the iBook easy to navigate, as there were time constraints on each group of students viewing it. As one of the students stated *'more time using the iBook may build my confidence with it'*, a proposal to faculty for the academic year will suggest a second iPad for use in the class. In hindsight a question on sharing the iPad with the class should have been considered and included in the survey.

Initially 100 percent of students agreed they would prefer the iBook to hard copy books, however this statistic had dropped to 50 percent after the trial, with 46 percent preferring books. The first year student cohort were originally shown the book midway through the first semester when perhaps their familiarity with the college library had yet to be fully established and this could therefore explain the 100 percent

response to initially preferring the iBook, however after completing their first semester examinations, nearly half of the students had changed their opinion with 46 per cent preferring hard copy books. 90 percent of students agreed in the first semester data collection they could gain more knowledge from the iBook than attending lectures, however this dropped to 39% in the subsequent survey with 43% gaining more knowledge from lectures, this change in statistic could also be explained by the fact that first semester lectures were in process, but were not complete when the initial data was gathered. Using the iBook in combination with theory lectures and studio practice would appeal to different learning styles; Fleming (2001) claims the sensory model of imparting information covers all learners. The Visual (V), Aural (A), Read/Write (R), and Kinesthetic (K), known as the VARK model '*relates to an individual's characteristics and preferred ways of gathering, organising, and thinking about information'* (Fleming, 2001, p. 1). Fleming argues visual learners prefer seeing (images; visual aids, diagrams, handouts, etc.). Auditory learners best learn through listening (lectures, discussions, etc.). Tactile/kinesthetic learners prefer to learn via experience—moving, touching, and doing (active; studio work, field trips etc). As 75 percent would like to see the iBook used as a basis for lectures, the iBook could be incorporated into theory lectures and also used to assist in practical studio work.

On agreeing with discovering new methods of assembling a window display, the statistic increased from 70 percent in the initial questionnaire to 82 percent after using the iBook in the studio. This increase may have incurred because as second semester students they have grown more confident in their practical and design capabilities, nevertheless to agree the iBook has increased their methods of designing shows the iBook as being a valuable resource in the studio. The feedback from the students reinforces Jackson's (2006) belief that rather than replicate well tried methods teachers should experiment with imaginative but riskier, perhaps less comfortable ways of doing things. Moving forward it is intended to introduce the iBook in the first semester for the first year student cohort commencing 2013/2014. The iBook will become a part of the theory that is delivered to students through lectures and will be available for use during practical sessions, with ideally a minimum of two iPads available in practice. The first year cohort of 2012/2013 will continue to use the iPad in second year to enable further theory into practice sessions. It is intended to make the iBook available to students who wish to purchase a copy for

the cost of €9.99. The limitations of this study are that it is from a small cohort and a more longitudinal story would be advantageous to gather more data.

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