DIGITAL GAME-BASED LEARNING FOR THE NET GENERATION: 
PERCEPTIONS OF UNIVERSITY STUDENTS

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Abstract

There is a new generation of learners entering universities around the globe. The Net Generation as this group of learners is called, is argued to possess unique learning styles and preferences due to the fact that they have grown up using a wide range of digital technologies and have technology embedded into their daily lives. This fuels a perception that traditional learning methods and techniques are not sufficient and that Higher Education institutions need to adapt their methods in order to accommodate the Net Generation. One of the learning tools that have been proposed to address the learning needs of the Net Generation has been digital game-based learning (DGBL). Studies of DGBL have consistently shown that good digital games have sound learning principles embedded in them and contain many elements which have the potential to engage and motivate learners. Certain researchers have argued against the notion of a generation which is homogenous in technology use and studies have shown that learners often differ in terms of their technological preferences and usage patterns. This highlights the importance of studying the perceptions of DGBL from an individual's point of view.

Research has also suggested that students are also often overlooked in the e-learning process. This research paper investigated University of Cape Town 1st year Commerce students' perceptions of DGBL in terms of the usefulness construct. This was done by collecting data through an online questionnaire where students had to rate statements on a 5-point likert scale. The sample population of 1st year students are said to be part of the Net Generation. The research produced some interesting results. Overall, students possess very positive perceptions about DGBL and students would prefer to have DGBL as part of their courses.

Keywords: Net Generation, Millennials, Digital Game-Based Learning, Digital Games, Student Engagement, Student Perceptions, University, Usefulness.

1 INTRODUCTION

Students and the youth of today have grown up in a world very unlike their elders. This generation has grown up constantly making use of technology and playing digital games (Prensky, 2001). The Net Generation as this group of people is often referred to, is argued to possess unique characteristics which enable them to learn differently to previous generations resulting from their constant exposure to technology and video games (Prensky, 2001). Many studies have concluded that digital games have many learning principles embedded in them, and thus much attention has been given to its use in education (Bekebrede, Warmelink, & Mayer, 2011). “The fact that gaming requires and elicits learning, fuels a perception that educational institutes can and need to adopt gaming technology and the accompanying principles of use to ensure the appeal and thus the learning effect of the educational programmes offered” (Bekebrede, Warmelink, & Mayer, 2011, p.1521). Little focus however has been placed on the potential adoption of digital game-based learning (DGBL) from the perspectives of students. The purpose of this research is to investigate the perceptions that students have about digital game based learning (DGBL) in terms of usefulness as a construct.

2 LITERATURE REVIEW

2.1 The Net Generation

The Net Generation, also known as digital natives, was a term first coined by Don Tapscott (1999) and refers to people who were born in the 1980s (although many authors argue about the exact dates that this generation span), who have grown up with information technology and other types of modern media essentially being embedded into their daily lives. Bekebrede et al. define the Net Generation
as: "A generation that has grown up with computer games and other technology affecting their preferred learning styles, social interaction patterns and technology use generally" (2011, p.1521).

2.1.1 Characteristics of the Net Generation

Howe and Strauss (2000) suggest that one of the key characteristics of the Net Generation is that they are able to process information differently to that of previous generations. Oblinger & Oblinger (2005) also argue that due to the fact that the Net Generation has been exposed to and used these technologies; they possess a unique set of characteristics.

Some of the key characteristics that Oblinger & Oblinger (2005, p.17): outline are:
- Ability to read visual images
- Visual-spatial skills
- Inductive discovery
- Attentional deployment
- Fast response time

In his book: Digital Game-based Learning, Prensky (2001) introduced the term: ‘gamer discourse’. This term basically describes certain characteristics and attributes of the Net Generation that set this generation apart from other generations, specifically in relation to their social interaction patterns, technology usage and favoured learning styles. According to Bekebrede et al. “the gamer discourse suggests that tech-savvy and game-playing learners wish to adopt and also expect an active, collaborative and technology-rich learning experience in their formal education" (2011, p.1522).

2.1.2 Implications for Higher Education

The presence of the Net Generation in Higher Education has a number of implications for educational institutions. Traditional teaching methods and techniques are no longer sufficient to satisfy the unique learning styles and preferences of the Net Generation thus educational institutions need to implement changes in their methods in order to accommodate them (Prensky, 2001). Students have undergone radical change and the result is that these students are no longer the students that current educational systems were originally designed to teach (Prensky, 2001).

According to (Hwang & Wu, 2012), Higher Education has received the most attention with regards to DGBL research. DGBL can teach a number of vital skills that Higher Education institutions strive for their students to learn such as: digital literacy, problem solving, communication, collaboration and critical thinking.

2.1.3 Criticisms of the Net Generation classification

Despite the growing popularity of the Net Generation and digital native terms, there are many authors who reject the notion that this distinct generation exists. Consequently, many studies have been conducted which challenge the idea of a distinct generation. Bennett, Maton, & Kervin (2008, p.776) suggest that the claims of the Net Generation and the urgent need for educational reform have been “subjected to little critical scrutiny, are under theorised, and lack a sound empirical basis.” Jones, Ramanau, Cross, & Healing (2010) echo this view and advise those in education to show caution in response to those who argue that educational institutions need to change drastically in order to accommodate the Net Generation. Jones et al. (2010) suggest that the new generation of students is not homogenous in that they do not all possess the unique learning styles and preferences advocated by Net Generation proponents and that these styles and preferences cannot be attributed to a specific age group as such.

2.2 Digital Game Based Learning

Prensky (2001) defines digital game-based learning (DGBL) as any marriage between educational content and computers. Over the last 20 years or so, a substantial amount of research regarding DGBL has been conducted and has become an even more increasingly popular and important topic of discussion over the last few years (Hwang & Wu, 2012). From the period 2001 to 2010, the number of papers published from 2006 to 2010 was more than 4 times that of the first 5 years (Hwang & Wu, 2012). However, despite the substantial hype surrounding DGBL, the area of study is currently still in its initial stages (Kickmeier-Rust & Albert, 2010).
2.2.1 Foundations of DGBL

The idea of games being used in education was perhaps fuelled by studies conducted by academics such as Csikszentmihalyi (1990), who amongst others, argued that play is an important facilitator of learning throughout life. Csikszentmihalyi (1975) first coined the idea of the flow state, which suggests that a person is utilising their skills to its full capacity when they are in a state where they are so immersed in an activity that nothing else matters. This is a state that many find themselves in while playing a game, due to its engaging and motivating nature. Research has demonstrated that the flow state has a positive impact on learning (Kiili, 2005). Advances in various technologies such as ICT (Information and Communication Technology) and gaming, have led to these technologies being proposed as ideal solutions to address problems within the educational system by improving classroom efficiency, increasing student engagement and solving teacher shortages (Fabos, 2001). The rise of the Net Generation and digital natives as discussed earlier in this paper; has also driven further research in the DGBL field due to its potential to address their unique learning styles and preferences.

2.2.2 Learning principles of DGBL

Reviews of gaming literature over the last forty years or so, including many rigorous statistical studies and meta-studies; have consistently found that games encourage learning and/or reduce instructional time across multiple disciplines and ages (van Eck, 2006). Prensky (2001) listed six key elements that all games contain:

- Rules
- Goals and objectives
- Outcomes and feedback;
- Conflict, competition, challenge and opposition;
- Interaction;
- Representation

Prensky (2001) argued that because of these elements, games have the power to engage people in fun ways, provide interaction, problem solving, enticing storylines and other elements which provide structure and motivation for the user while promoting involvement and creativity. Ke (2009) suggests that because digital games offer an opportunity to play in simulated environments, they are an essential component of learning and intellectual development. According to Gee (2003), well-designed digital games demonstrate that learning is fun, and that there are 36 implicit learning principles embedded in good digital games. Roodt & Joubert (2010) state that DGBL brings advantages such as heightened engagement, an interactive learning process, adaptability to subject matter and a learning style suited to modern learners, to any learning environment.

Gee (2003) also offers a very interesting perspective in that games have to involve a certain level of learning in order to survive on the market. If games didn’t require a certain amount of learning and couldn’t be mastered at a certain level, then nobody would want to play the game, and the game would simply not make any money. It also doesn’t make any sense to make a game that’s too easy to master, as gamers generally want to be challenged. Thus game developers face a similar dilemma to that of educational institutions: how to get people to learn and master something that is long and challenging, while at the same time getting them to enjoy it (Gee, 2003). The massive success and growth of the gaming industry suggests that to a large extent game developers are solving this problem.

Games also have the ability to teach skills required for the workplace (Mcclarty, Frey, & Dolan, 2012). In 2005, the Federation of American Scientists, the Entertainment Software Association, and the National Science Foundation collaborated together with numerous experts in an attempt to consider ways of developing learning games. One of their findings was that many of the skills that are required by gamers in order to excel at games such as thinking, planning, learning and technical skills are skills that are highly sought after by employers (Mcclarty et al., 2012).
2.3 Perceptions of DGBL

2.3.1 Student perceptions of DGBL

As highlighted in this paper, there is a substantial amount of interest in DGBL and its adoption in education, as well as if and how educational institutions need to adapt to accommodate the Net Generation learners. However there seems to be far less research with regards to DGBL from the student’s point of view. Seddon & Biasutti (2009) point out that students are often overlooked or taken for granted in the e-learning process, despite their obvious status as vital stakeholders. Selim (2003) suggests that getting to understand students’ perspectives can help educators and instructors to integrate instructional technology in the class more effectively, thereby improving and enhancing the learning process.

2.3.2 Studying perceptions

Fishbein and Ajzen (1975) presented the theory of reasoned action (TRA), a model used to predict behavioural intention, which is basically an individual’s readiness to perform a specific behaviour and is the primary contributing factor towards actual behaviour. The model also predicts attitude.

Davis (1989) later developed the Technology Acceptance Model (TAM), which is an extension of the TRA model. TAM is one of the most popular models in information systems research and attempts to model how users come to accept technologies. TAM recognises two user beliefs: perceived usefulness and perceived ease of use, as being the major determinants for ones’ behavioural intention to use information systems (Davis, 1989). However sometimes these two variables have been seen as insufficient to predict behavioural intention to use and thus many researchers have successfully managed to add variables onto the TAM model depending on the context of their research.

Bourgonjon, Valcke, Soetaert, & Schellens (2010) created an adapted TAM model to study perceptions of students regarding DGBL as they found that perceived usefulness and perceived ease of use appeared to be important predictors for students’ acceptance. In addition, four more variables were added onto the model. The variables of the adapted TAM model are as follows (Bourgonjon et al., 2010):

- Preference for video games (dependant variable) – “positive feelings about games for learning and predicted choice for video games in the classroom” (Bourgonjon et al., 2010, p. 1146).
- Usefulness - “the degree to which a person believes that using a particular system would enhance his or her job performance” (Bourgonjon et al., 2010, p. 1147).
- Learning Opportunities – “the degree to which a person believes that using video games in the classroom can offer him or her opportunities for learning” (Bourgonjon et al., 2010, p. 1147).
- Ease of Use - ‘the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p. 320).
- Experience
- Gender

Bekebrede et al. (2011) found that students deem gaming to be valuable and to add value to their education. They identified that this was a view held generally by all respondents, rather than just those that were identified as part of the net generation. This is somewhat encouraging as it shows that the use of good digital-based games is appropriate to everyone, and not just those who are characteristic of the net generation. Ibrahim (2011) conducted a study on student perceptions of using games to learn programming skills. The results showed that most of the students involved in the study were highly interested in using games as a learning approach.

3 METHODOLOGY

3.1 Purpose

The purpose of this research is to attempt to explore the perceptions that the Net Generation students have about DGBL in terms of usefulness as a construct.
3.2 Philosophy

The philosophy that was adopted for this research was mainly from a positivist view due to the fact that it dealt with facts and phenomenon that are observable and drew on existing theory to develop research questions (Saunders, Lewis, & Thornhill, 2009). The researchers were independent from the population of the study. The main research question of the research paper is: What are the Net Generation students’ perceptions of DGBL with respect to usefulness and preference for using DGBL on courses in Higher Education.

3.3 Approach

This research adopted a deductive approach. The study was conducted through theoretical lenses which a number of research questions were based on (Saunders, Lewis, & Thornhill, 2009). The data gathered from an online survey was analysed using a variety of statistical measures. The research questions were then answered by discussing the findings provided by the analysis and relating them to relevant theory.

3.4 Strategy

The research drew on results from an online survey to answer the various research questions. This strategy was selected as it was an easy way to collect and analyse large amounts of quantitative data from a population without an excessive amount of effort or resources (Saunders, Lewis, & Thornhill, 2009). The survey consisted of two sections. The 1st section consisted of questions about the students’ demographics and basic information. The second section contained questions adapted from a study by Bourgonjon et al. (2010) which related to the usefulness, ease of use and learning opportunities of digital games, as well as the students’ previous gaming experience and preference for DGBL. The survey consisted of questions which were answered on a 5 point Likert scale from strongly disagree to strongly agree (except for the demographics questions which will be answered by ticking check boxes).

3.5 Sampling plan

The population that was used to collect data for the study was all 1st year BCom students from the Commerce faculty at the University of Cape Town who are enrolled in the “Introduction to Information Systems course”. This group is assumed to be part of the Net Generation as these students would have been born after 1980. The number of students enrolled in the information systems courses was approximately 1050.

3.6 Data collection

The data collection method was structured and consisted of an online survey. The survey contained questions adapted from a study about student perceptions regarding the use of video games in the classroom (Bourgonjon et al., 2010). The survey was made available through Vula, which is the university’s online collaboration and learning environment for students and staff. This was chosen due to the fact that every student at the university uses Vula on a regular basis, and would have previously been exposed to online surveys on the site. This was an attempt to make the response process easier and more convenient for the students; in order to increase response rates. Once the students had submitted their responses to Vula, the data was then exported to Microsoft Excel.

3.7 Data analysis

The data collected by the online survey on Vula was exported to Microsoft Excel. Once in Excel, the data was cleaned. This included deleting blank columns and removing incomplete responses. Once cleaned, the sample size consisted of 139 responses. The Excel data was then imported into SPSS. Descriptive statistics was then performed on the data using the SPSS.

3.8 Ethical issues

Participation by students in this study remained anonymous and all information gathered about individuals will be treated as strictly confidential. The data used in the study was password protected to prevent tampering. In gaining approval for this research, all required ethics approval procedures were followed which included obtaining approval from department and faculty level as well as from the
Human Resources department. There was a question on the questionnaire regarding race which is a potential ethical concern however respondents were provided with an option not to answer.

3.9 Limitations and risks

One of the limitations of this research is that the study is only being conducted at a single university in South Africa which is the University of Cape Town (UCT). This is due to time constraints and practicality issues such as gathering data from multiple universities. While the demographics of the population used in this study are most likely representative of all South African universities, there may be certain factors which are specific to The University of Cape Town which may not be applicable to other universities or vice versa. Another limitation is that the study only involves students from a single faculty.

4 RESULTS

4.1 Demographics

4.1.1 Age

Question 1: How old are you?

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 - 20</td>
<td>132</td>
<td>95.0</td>
<td>95.0</td>
<td>95.0</td>
</tr>
<tr>
<td>21 - 25</td>
<td>6</td>
<td>4.3</td>
<td>4.3</td>
<td>99.3</td>
</tr>
<tr>
<td>&gt; 25</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

As the respondents were taken from 1st year courses, the majority of respondents were between the ages of 17 and 20. Six were between 21 – 25 years old and only 1 respondent was over the age of 25.

4.1.2 Ethnicity

Question 2: From which ethnic background are you?

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No answer</td>
<td>5</td>
<td>3.6</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Colored</td>
<td>32</td>
<td>23.0</td>
<td>23.0</td>
<td>26.6</td>
</tr>
<tr>
<td>Black</td>
<td>58</td>
<td>41.7</td>
<td>41.7</td>
<td>68.3</td>
</tr>
<tr>
<td>White</td>
<td>27</td>
<td>19.4</td>
<td>19.4</td>
<td>87.8</td>
</tr>
<tr>
<td>Indian</td>
<td>11</td>
<td>7.9</td>
<td>7.9</td>
<td>95.7</td>
</tr>
<tr>
<td>Asian</td>
<td>3</td>
<td>2.2</td>
<td>2.2</td>
<td>97.8</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.2</td>
<td>2.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The majority of respondents were black comprising 41.7% of all respondents. Coloureds represented 23% while 19.4% were white. The race least represented by the study is Asians. Five respondents opted not to disclose their race.
4.1.3 Gender

Question 3: What is your gender?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>52</td>
<td>37.4</td>
<td>37.4</td>
<td>37.4</td>
</tr>
<tr>
<td>Female</td>
<td>87</td>
<td>62.6</td>
<td>62.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

In terms of the gender of respondents, 62.6% were female while 37.4% were male.

4.2 Perceived Usefulness of DGBL

4.2.1 Performance

Question 4: Using DGBL in my courses would improve my performance

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>6</td>
<td>4.3</td>
<td>4.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Disagree</td>
<td>10</td>
<td>7.2</td>
<td>7.2</td>
<td>11.5</td>
</tr>
<tr>
<td>Neutral</td>
<td>43</td>
<td>30.9</td>
<td>30.9</td>
<td>42.4</td>
</tr>
<tr>
<td>Agree</td>
<td>67</td>
<td>48.2</td>
<td>48.2</td>
<td>90.6</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>13</td>
<td>9.4</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Most respondents agreed to some extent that using digital games in their courses would improve their performance. 48.2% agreed with the statement while 9.4% strongly agreed. 11.5% of respondents disagreed or strongly disagreed with the statement.

4.2.2 Productivity

Question 5: Using DGBL in my courses would increase my learning productivity

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>4</td>
<td>2.9</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>Disagree</td>
<td>20</td>
<td>14.4</td>
<td>14.4</td>
<td>17.3</td>
</tr>
<tr>
<td>Neutral</td>
<td>24</td>
<td>17.3</td>
<td>17.3</td>
<td>34.5</td>
</tr>
<tr>
<td>Agree</td>
<td>78</td>
<td>56.1</td>
<td>56.1</td>
<td>90.6</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>13</td>
<td>9.4</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Most respondents (65.6%) agreed to some extent that using digital games in their courses would increase their learning productivity while 17.3% disagreed with the statement to some extent.

4.2.3 Effectiveness

Question 6: Using DGBL in my courses would enhance my effectiveness
Table 6. Using DGBL in my courses would enhance my effectiveness.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>6</td>
<td>4.3</td>
<td>4.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>10.8</td>
<td>10.8</td>
<td>15.1</td>
</tr>
<tr>
<td>Neutral</td>
<td>42</td>
<td>30.2</td>
<td>30.2</td>
<td>45.3</td>
</tr>
<tr>
<td>Agree</td>
<td>66</td>
<td>47.5</td>
<td>47.5</td>
<td>92.8</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
<td>7.2</td>
<td>7.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Most respondents (54.7%) agreed to some extent that using digital games in their courses would enhance their effectiveness while 19.4% disagreed to some extent.

4.2.4 Grades

Question 7: Using DGBL in my courses would help me to achieve better grades

Table 7. Using DGBL in my courses would help me to achieve better grades.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>7</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>19</td>
<td>13.7</td>
<td>13.7</td>
<td>18.7</td>
</tr>
<tr>
<td>Neutral</td>
<td>59</td>
<td>42.4</td>
<td>42.4</td>
<td>61.2</td>
</tr>
<tr>
<td>Agree</td>
<td>47</td>
<td>33.8</td>
<td>33.8</td>
<td>95.0</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>5.0</td>
<td>5.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Most respondents remained neutral in response to the statement that using digital games in their courses would help them achieve better grades. 38.8% agreed with the statement to some extent as opposed to the 18.7% who disagreed to some extent.

4.2.5 Means for the Usefulness construct

Table 8. Means for the Usefulness construct.

<table>
<thead>
<tr>
<th>Usefulness</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>139</td>
<td>139</td>
<td>139</td>
<td>139</td>
<td>139</td>
</tr>
<tr>
<td>Mean</td>
<td>3.51</td>
<td>3.55</td>
<td>3.42</td>
<td>3.20</td>
<td>3.4209</td>
</tr>
</tbody>
</table>

The above table displays the mean scores for questions Q4-Q7 as well as the mean for the usefulness construct which is calculated as 3.4209. This indicates that respondents agree that digital games in their courses would be useful.

5 CONCLUSION

In order to gain insight into students’ perceptions of DGBL in terms of usefulness, the responses for each question within the usefulness construct had to be analysed. From the analysis, each usefulness question produced high means over the 2.5 mark. The means for each question were averaged to calculate the mean for the usefulness construct which was found to be 3.4209. This high mean indicates that there is a high degree of belief among students that having DGBL in their courses can enhance their performance.
In terms of investigating the perceptions of Higher Education students, most respondents displayed a positive attitude towards DGBL. Most importantly students appear to have a strong preference for DGBL in their courses.

REFERENCES


