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Investigation of iPad tasks and activities carried out by the teachers and students of the foundation program of the Men's & Women's Colleges in Fujairah, United Arab Emirates

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ABSTRACT

The purpose of this study was to investigate the types of tasks and activities, and the frequencies the teachers and students in the Foundations Program of the Fujairah Men's College and Fujairah Women's College used the iPad for. This new technology was introduced to enable the Program's teachers and students to support their teaching and learning of English as a foreign language. The data for the research were drawn from class observations, interviews and surveys. The data for this research were collected by means of two online surveys involving the Foundations Program's teachers and students, six class observations and five interviews of the teachers who conducted the classes. For further acquisition of data, two surveys – one for the teachers and one for the students – were conducted. The findings of the study revealed that the use of the iPad promoted student engagement with the material taught and enhanced their focus on the activities and tasks involving the new technology. The present study contributes to better understanding of the issues involved in introducing a new technology into a learning environment and it goes some way to fill an existing gap in the literature on mobile language learning in general and iPad-based English language learning in particular.

1. Introduction

The Department of Radiology & Imaging Services at Indiana University School of Medicine in Indianapolis conducted a pilot project in which the iPad was used for teaching and learning. The aim of the project was to test the theoretical principles of digital imaging. The testing was to be carried out using computed radiography (CR) and it was to be accompanied by the use of the iPad for hands-on interaction. It was thought that the use of the iPad would enhance student learning. The primary goal of the project was to increase student success by turning the passive learners of the lecture environment into active learners in labs and clinics.

It was found that by using the iPad, it was possible to bridge the gap that links the computed radiography principles and digital imaging systems to hands-on learning. Radiography students were able to take part in collaborative and comprehensive lab

experiments as the iPad provided them with hands-on interaction. In these lab experiments, the students transferred information from lectures into a simulated work situation. They worked in pairs to make x-ray exposures on a radiographic phantom. The iPad helped them learn better ways of operating the computed radiography medical imaging systems and collaborate on assessing digital imaging (Robinson, 2011).

For the teacher supervising the project, the iPad was a tool she used to implement several teaching strategies to encourage active learning. This is because the iPad can connect simulation to real situations and this is particularly true in the area of health care (Robinson, 2011).

In the project above the iPad enabled the students to put into practice the theoretical digital imaging principles, thus bridging the gap between these principles and hands-on learning. It also provided them with hands-on interaction among themselves working in groups to carry out lab experiments. One can argue that other technologies could have helped the students in the project above in the same way as the iPad did. However, if the learners had to use laptops, they would probably have needed sophisticated and expensive programs to perform the same functions that were carried out by cheap and available iPad apps. Moreover, laptops are not as portable as iPads.

Some research suggests that the iPad allows a higher level of collaboration among learners and teachers than desktop computers and laptops, the former being fixed in place and the latter is not as easy to manipulate as the iPad in terms of functionality. However, the iPad could support a higher level of collaboration only if certain conditions exist such as when face-to-face interaction is not possible or when one or more of the learners can communicate only with the help of assistive technology.

2. Literature Review

iPad & Informal Learning

Tablets such as the iPad are highly mobile and can easily be connected to networks. This goes some way to explain why they are popular among language educators. They are enhancing Mobile-Assisted Language Learning (MALL), which is a new area of Computer-Assisted Language Learning (CALL) inquiry (Chen, 2013).

An action research project conducted by Chen (2013) of South China University of Technology, investigated how students used tablets to learn English in informal settings outside of class and how the use of these computers can foster independent and collaborative language learning. The participants of the study consisted of twelve English freshman majors (six men and six women) from the researcher's university. They were randomly chosen by drawing lots from nearly 30 volunteers recruited from an intensive reading class. The data for the project were collected in two stages. In stage one, the students' daily English learning activities using the tablets and the problems they encountered were recorded and then analysed. In stage two, the researcher divided the participants into three groups and instructed them to research tablet-assisted language learning for a)

listening and speaking, b) reading and writing, and c) real life language usage. These groups were required to review possible apps for these areas and design learning activities that might involve other learners.

The findings of the study are interesting in two ways. Firstly, it was found that although the learners adopted positive attitudes towards informal learning using the tablet, effective learning was not achieved. This is because the students were given no guidance on the technological aspects of the tablets or on the best methods to use them to achieve effective learning. Secondly, when the students were given opportunities to create a networked learning environment using tablets, they took responsibility for their own learning, developed learner autonomy, but also adopted collaboration as an important learning strategy (Chen, 2013).

It is worth noting that the above research shows that although the iPad facilitates informal learning, which is one of its appealing affordances, effective learning is not always achieved. It did not happen in the study outlined above because the students were not given the chance to familarize themselves with the technological features of the tablets nor were they taught the best methods to use them. In contrast, when the students were given opportunities to create a networked learning environment using tablets, they took responsibility for their learning and developed learner autonomy. With that autonomy, they also used collaboration as an important learning strategy (Chen, 2013).

The study above is limited by its lack of generalizability due to the limited number of participants. In addition, it did not explore the issue of how to create a more supportive environment for the students who were less willing to express themselves in English during the project. Another limitation was the lack of teachers' perceptions of the effectiveness or lack thereof of tablet-assisted language learning.

Thanks to mobile technologies such as the iPad, learning can now extend beyond formal classroom boundaries -- both physical and digital. When it takes place outside these boundaries, learning becomes mostly informal, free from time and space constraints. Informal learning is the foundation of true lifelong learning. By using mobile technologies people can easily engage in this form of learning, thus paving the way to becoming lifelong learners. Since mobile technologies can easily blend into everyday life, they provide considerable support for informal learning, which is characterised by flexibility, spontaneity and ad-hoc adaptability (Engle et al, 2011).

iPad: Motivation and Engagement

Teachers who possess content, pedagogical and technological knowledge (TPACK) can use the iPad to significantly promote student motivation and engagement. An example of the successful implementation of iPads within a task based learning (TBL) framework took place in the Academic Bridge Program (ABP) at Zayed University (ZU) in Abu Dhabi, UAE.

The lesson was presented to three level 010 (the lowest in the Academic Bridge Program) classes of about 20 female students and it was designed in accordance with the TBL framework which has three phases: pre-task, the task cycle and language

focus. The iPad was used at various stages in the lesson and in accordance with the SAMR framework of Redefinition, Modification, Augmentation and Substitution (Balanyk, 2013).

All three teachers who delivered the lessons stated that their students were highly engaged throughout the lesson and they were motivated enough to complete the task as best as they could. The lesson also demonstrated how the iPad's flexibility and capabilities make it compatible with every stage of SAMR framework (Balanyk, 2013).

At a federal higher education institution in the United Arab Emirates the iPad was used to create a resource that was designed to improve student engagement and motivation through a task-based learning method in the area of Teaching English to Speakers of Other Languages (TESOL). The resource, which has seven sections, has student-centered authentic tasks that have the potential to enhance student motivation and independence.

The most important sections of the resource are:

- The *Introductory* section, which familiarizes the students with the topic.
- The *Identify* section which is a warm up activity.
- The *Search the Web* section, which gets the students through their web search.
- The *Project Write Up* section which provides the students with the chance to put together the information they found on the web to create their own artifact.

The students used NearPod to access the resource on their iPads. The different tasks appeared as separate slides on the app (NearPod) and the teacher had full control of the slides the students could see on their iPads. To complete the Project Write Up section the students used iMovie to create an artifact (Taylor, 2014).

Since the iPad was used to deliver the whole lesson, having a reliable Internet connection is vital. If the Internet connection is slow, the lesson slows down resulting in adverse effect on student motivation and engagement. The use of the iPad allowed the students instant access to needed web resources and the portability of the technology made it easy for them to move around in the classroom resulting in a seamless transition between different tasks (Taylor, 2014).

Student motivation and engagement (plus language development) were examined in a longitudinal research study on the use of the iPad in the English language classroom in a higher education institution in UAE. The participants were Emirati nationals aged between 18 and 21 who were attending a foundations program at this tertiary education institution. The data for the study were collected by administering a student survey designed to measure changes in self-reported usage of iPad apps and iPad activities. The survey was first administered in January 2013 – the end of the first semester of the iPad implementation. A year later, in January 2014, it was administered for the second time. The purpose of this exercise was to identify the changes in student motivation and engagement for in-class and out-of-class learning activities and to examine how the iPad affected the students' learning outcomes and the development of their English language skills (Gitsaki et al, 2013).

The researchers stated that the participant students had displayed a positive attitude towards using the iPad for learning English, which remained at the same level for an entire year. They also found that there was a connection between student engagement in specific activites and the frequency of engagement on the one hand and a self-perceived improvement of language skills and student performance at the end of the semester tests on the other (Gitsaki et al, 2013).

iPad & the iShape Program

The iShape Program was designed by the Health and Physical Education (HAPE) faculty of the Dubai Higher Colleges of Technology to deliver health and physical education learning via innovative technologies. The introduction of the iPad to the Foundations Program at all the HCT colleges in 2012 provided the HAPE department with the opportunity to address Fogg's concept of *captology* (2002), which is the overlap between persuasion and computers.

Specifically, the iPad's iBook was used to deliver the iShape program's multimedia videos, interactive quizzes, social media feeds, dynamic picture galleries and the course presentation material. On the other hand, the iPad itself was used to access/update students' records of health and physical exercise data and to record physical fitness data.

According to the HAPE faculty who ran the iShape program, the use of the iPad, apps and iPad peripherals improved students' abilities and motivation, thus bringing about a behavioural change towards a healthier lifestyle (Carter, 2013).

iPad & IELTS Preparation

IELTS preparation is of paramount importance to the students of the Foundations Program at the Higher Colleges of Technology because these students need to achieve IELTS Band 5.0 or higher in order to qualify for Bachelor's programs. However, a considerable number of them fail to achieve this goal, which makes a well-designed IELTS preparation program critical for their success in achieving their goal. According to Taylor (2013) students who are a band or more away from achieving IELTS Band 5 or above may find an effective IELTS preparation program advantageous (Taylor, 2013).

Using the iPad's iBook Taylor (2013) designed an IELTS Task 1 writing preparation unit for 24 Emirati male students aged between 18 and 22 who are a band away form achieving IELTS Band 5.0 in the writing module. The materials are an introduction to Task 1 of the IELTS writing module: how to write a report. The interactive unit used the iPad's affordances to engage the students and help them practice the skills and strategies necessary for report writing. It can be used as an independent digital object or as supplementary to a textbook.

According to the author, the experiment had some drawbacks and one of them was that the materials took a long time to source and edit and it took an equal amount of time to create the interactive tasks and sequence the activities to create a workflow that supports students' learning and language development. Nevertheless, he found the project "an extremely rewarding experience" (Taylor, 2013, p. 52).

3. Methodology

3.1 Research participants

The research participants were drawn from the teachers and students of the Foundations Program at FWC & FMC who had been using the iPad's technical affordances to create pedagogical affordances in order to enhance their teaching and learning of English as a foreign language. Twenty-eight teachers received the teacher survey, but only fourteen (14) responded. The student survey was sent to 578 students (FMC = 89 and FWC = 491) and out of these a hundred and ninety-four (194) responded. Five teachers conducted six classes, which I observed, and the five teachers were interviewed after the observations. One of them had delivered two classes.

3.2 Sampling

I used two sampling strategies for this study: cluster sampling for the students and convenience sampling for the teachers. When the population is large and widely dispersed (the Foundations Program students in 17 Higher Colleges of Technology dotted around the country), cluster sampling seems the appropriate strategy to adopt. It would have been very time consuming to select all the Foundations Program students in the HCT system to survey for the research. As a result, I selected the two Fujairah colleges where I work and which are geographically close to each other.

3.3 Data Collection Instruments

The data for this research were collected by means of two online surveys involving the Foundations Program's teachers and students, six class observations and five interviews of the teachers who conducted the classes.

Having collected data using the instruments described above, I was advised by my supervisor to collect further data. The aim was to further enrich the findings of the study. I, therefore, posed two additional questions to five Foundations teachers and ten Foundations students chosen at random from among the Foundations Program teachers and students at both colleges. The five students chosen from each college came from the four levels (1, 2, 3 & 4) of the Foundations Program.

3.4 Data Analysis

For this study a manual process of analysis was used and for which I followed the model prescribed by Taylor-Powel & Renner (2003). This involved reading and re-reading the data in order to acquire familiarity with it and to identify meaningful and potentially insightful chunks, which refer to possible answers to the research questions. Next, all relevant chunks were placed into categories and given descriptive labels. As many categories and sub-categories as needed were added to reflect the nuances in the data and to enable clear interpretation. The data were searched and coded manually rather than using computer applications. Although this process was time-consuming and required a high level of concentration, it kept me close to the data and made it possible for me to constantly compare data within and across class observations and interviews. To interpret the data a list of key points and important findings was created. This was the result of categorizing and sorting out the data. Quotes and descriptive examples were added in order to illustrate key points and bring data to life. Abbreviations and codes

were used to tag key themes – ideas, concepts, beliefs, incidents and terminology used. Once the data were sorted out, attempts were made to make connections between the categories and put aside exceptions that did not seem to fit into their categories (Taylor-Powell & Renner, 2003).

4. Results and Discussion

Results

iPad Use Surveys

Faculty & Student Surveys

To gain an insight into how the faculty and students of the Foundations Program had been using the iPad, we need to look at the results of these surveys.

Teacher Survey

Twenty-eight teachers were sent the questionnaire in the two Fujairah colleges, but only 14 responded. Their responses are reflected in first six charts displayed below.

Chart 1: iPad Uses

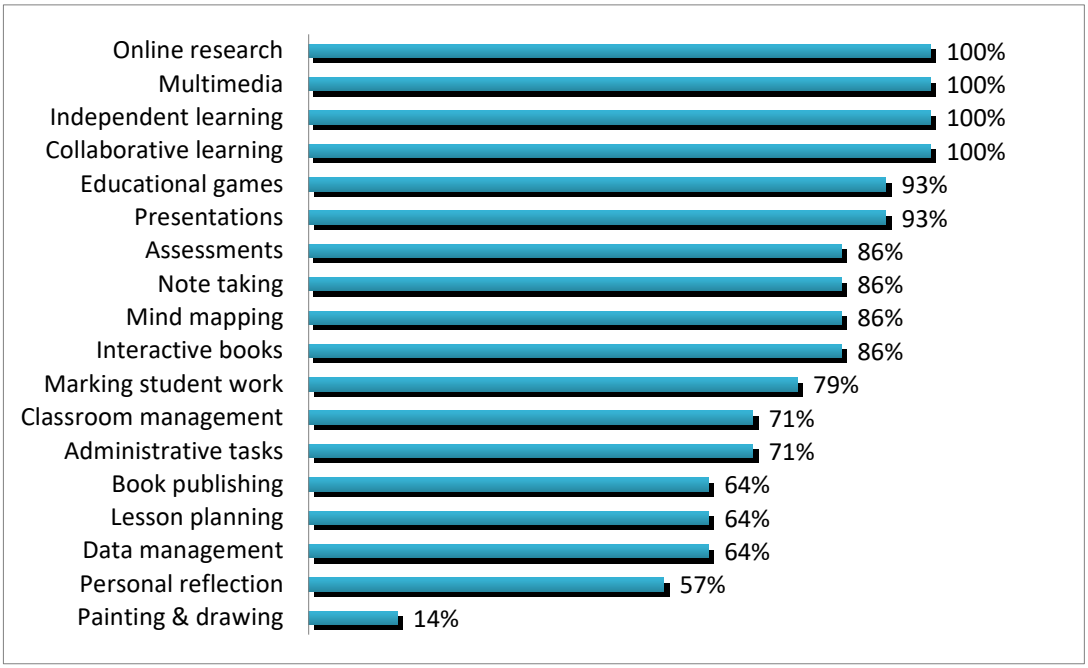
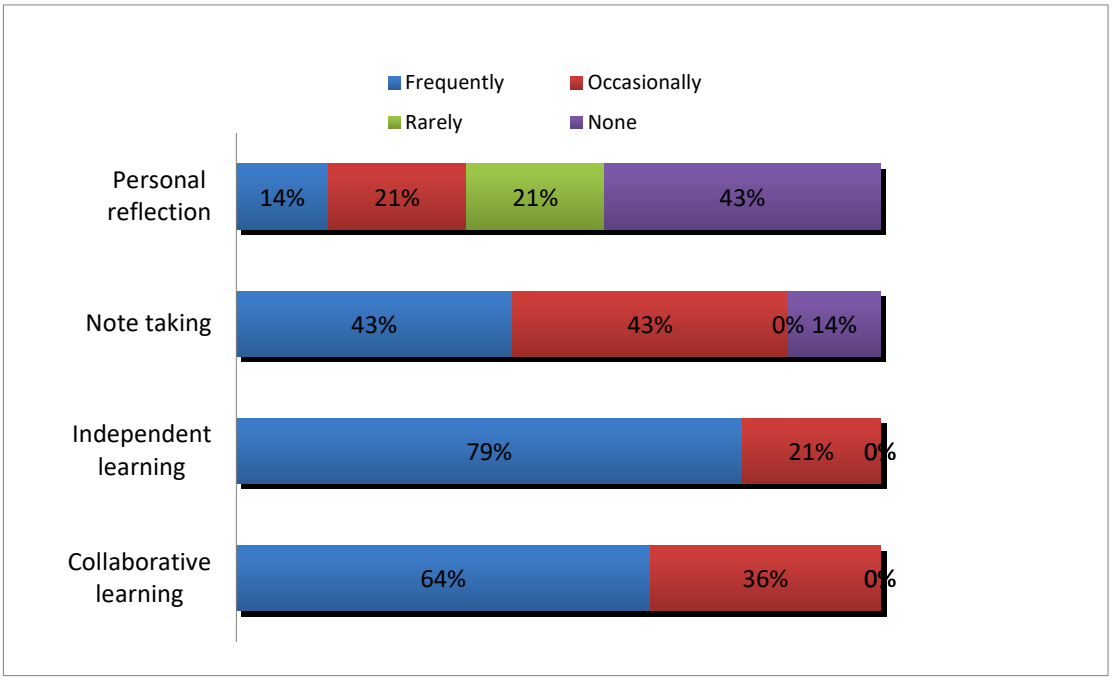


Chart 1 shows the iPad uses by the faculty of the Foundations Program at FWC and FMC in percentage terms. The Y-axis of the chart lists the uses and opposite them are their percentage rates.

The uses are arranged with those having the highest percentages being placed at the top and the ones with the lowest percentage rates at the bottom. Online research, multimedia, independent learning and collaborative learning are at the top (100%). At the other end of the spectrum is music making with 0%. The rest of the uses are ordered as follows: educational games and presentations (93%); assessments, note taking, mind mapping and interactive books (86%); marking student work (79%); classroom management and administrative tasks (71%); book publishing, lesson planning and data management (64%); personal reflection (57%) and painting and drawing (14%).

Chart 2: iPad-Based Learning



This chart depicts the types of learning for which the iPad is used on the Y-axis. For these types of learning the iPad is either used *frequently* (blue), *occasionally* (red), *rarely* (green) or *never* (violet). The frequency of use is expressed in percentage terms.

Only 14% of respondents used the device for personal reflection frequently, 21% used it occasionally, another 21% rarely and nearly half of them (43%) never used it for that purpose.

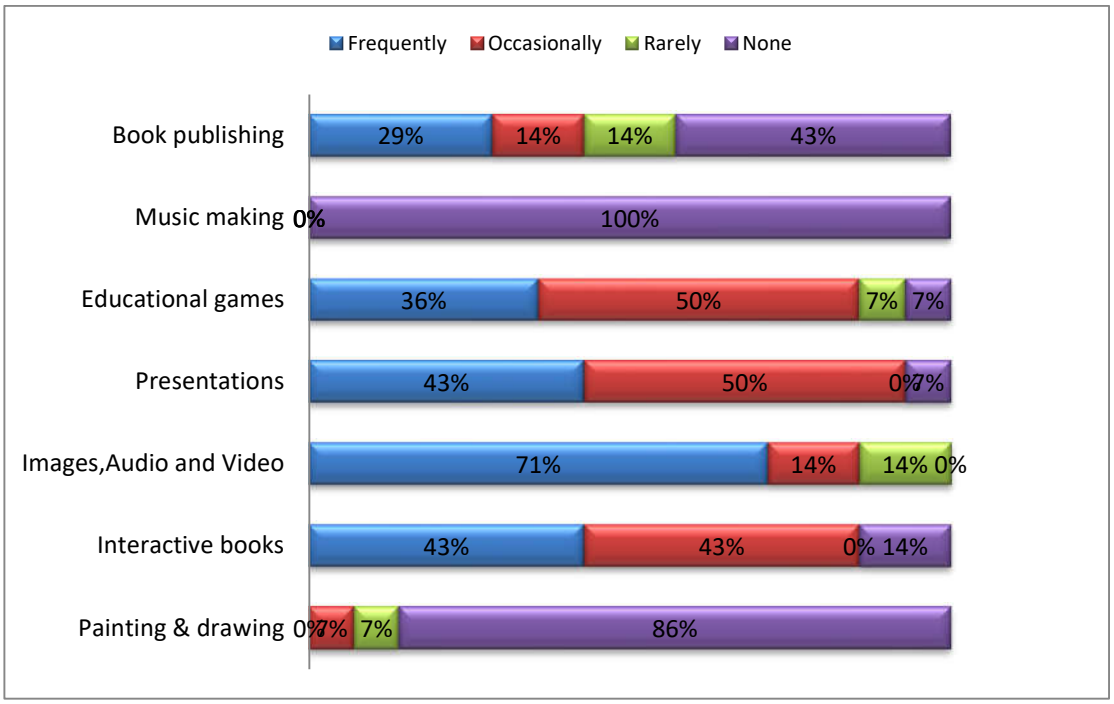
Forty three per cent of the respondents used the iPad frequently and occasionally for note taking.

The iPad was used for independent learning frequently by 79% (more than two thirds) and occasionally by the rest of the respondents (21%).

More than half the respondents used the technology frequently for collaborative learning (64%) with the rest using it occasionally (36%).

The iPad was used frequently for independent learning (79%). Collaborative learning comes second at 64%, while note taking is in third place (43%).

Chart 3: iPad-Based Multimedia



The above chart has iPad uses on the Y-axis and the frequency rates of these are expressed in percentages opposite them. Four colours represent frequency rates: *frequently* (blue), *occasionally* (red), *rarely* (green) and *never* (violet).

Nearly half the respondents (43%) never used the iPad for book publishing and only 29% used it frequently for that purpose. The rest of the respondents used it occasionally and rarely in equal measure (14%). The technology was never used for music making.

Exactly half the respondents used the iPad occasionally to play educational games (50%), whereas nearly one third (36%) of them used it frequently for the same purpose. A very small number of them (7%) rarely used it for these games and an equal number (7%) never used it for this purpose.

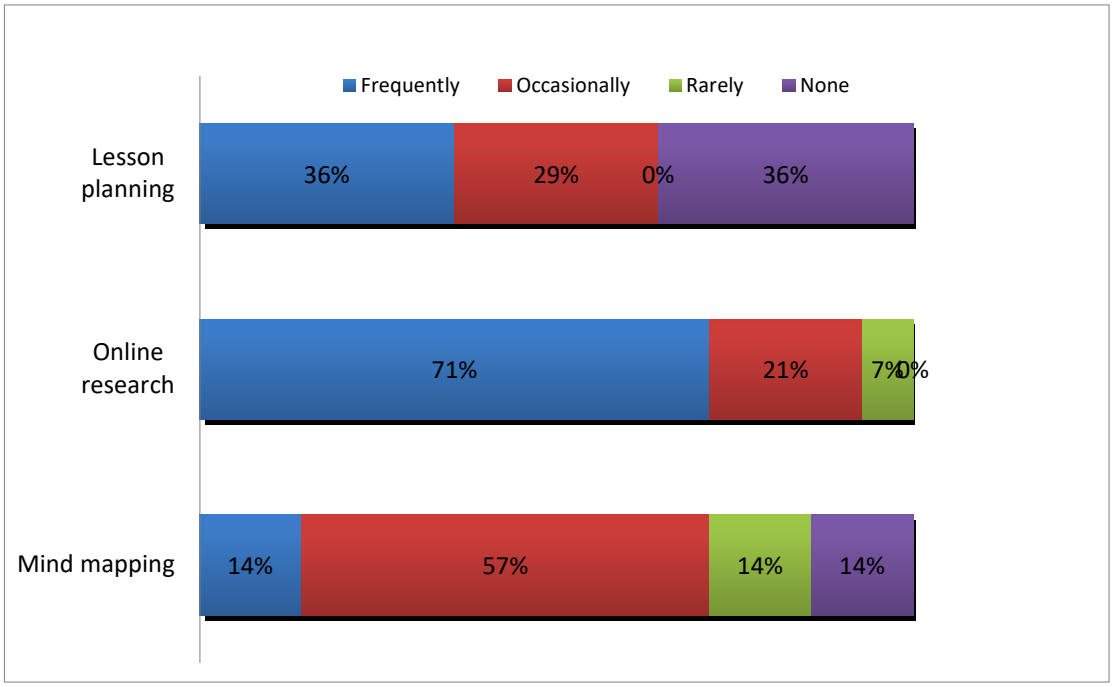
Similar to the use of the iPad for educational games is its use to do presentations. Once again, exactly half the respondents (50%) used the technology occasionally for presentations and more than third of them (43%) used it frequently.

Over two thirds (71%) of the respondents used the iPad frequently for images, audio and video material and the rest used it occasionally and rarely equally (14%).

Slightly less than 90% of the respondents used the technology frequently and occasionally for interactive books, with each category taking 43% respectively.

The majority of the respondents (86%) never used the iPad for painting or drawing and only 7% of them used it occasionally and rarely for that purpose.

Chart 4: iPad-Based Planning



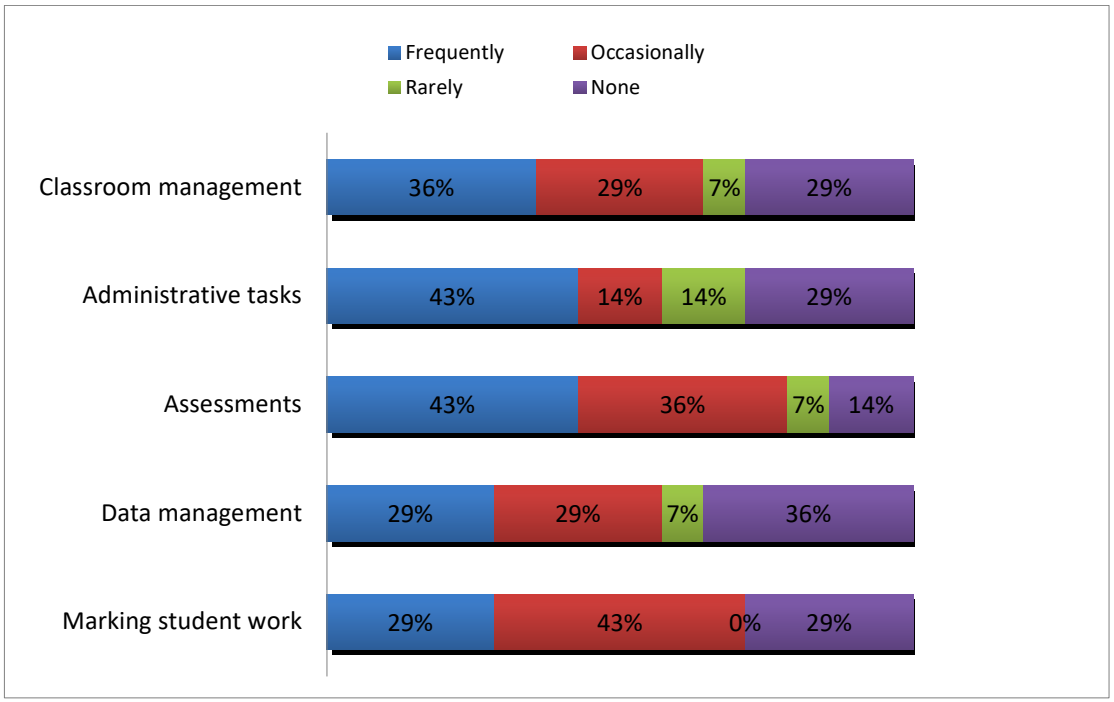
The Y-axis of the chart above lists three uses of the iPad: lesson planning, online research and mind mapping. The legend depicts four colours for four frequency categories: *frequently* (blue), *occasionally* (red), *rarely* (green) and *never* (violet).

Just over one third (36%) of the respondents used the iPad frequently for lesson planning and an equal percentage of them (36%) never used it to plan their lessons. The rest of the respondents used it occasionally for this purpose.

In contrast, over two thirds (71%) used the new technology frequently for online research, whereas only 21% used it occasionally and a very small number (7%) rarely used it for this type of research.

Respondents used their iPads for mind mapping a lot less than they used it for online research. Just over half (57%) used it occasionally for this purpose compared to 71% who used it for online research. The rest is divided equally among the *frequently*, *rarely* and *none* categories with 14% each.

Chart 5: Various iPad-Based Uses



There are five administrative uses of the iPad as shown in the chart above. These are listed on the Y-axis of the chart and their color-coded frequency rates are depicted opposite them. As in previous charts the colours are blue, red, green and violet representing the categories *frequently*, *occasionally*, *rarely* and *never* respectively.

Those who used their iPads for class management frequently make up just over one third (36%) of the respondents. In contrast, less than a third (29%) used the device occasionally and the same number of respondents (29%) never used it to manage their classes. The remaining 7% rarely used the technology for this purpose.

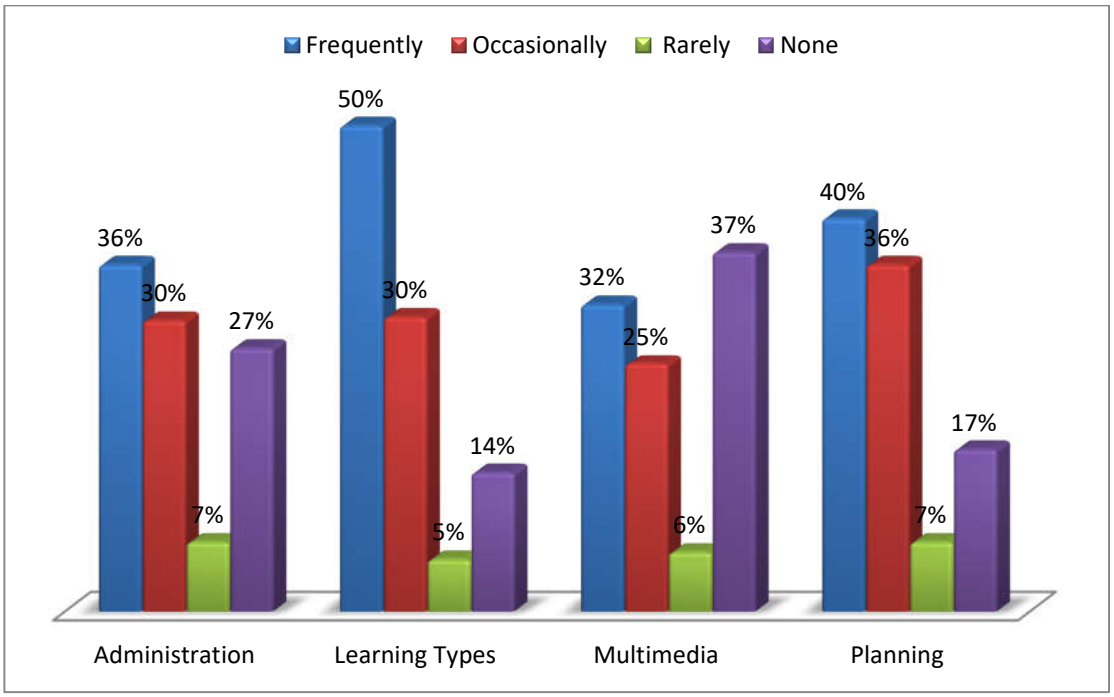
Nearly half the respondents (43%) used their iPads frequently to carry out administrative tasks, whereas less than a third (29%) never used it to carry out such tasks. An equal number used it occasionally and rarely – they make up 14% each.

The same number of respondents (43%), who used their iPad frequently for administrative tasks, used it to carry out assessments. Fewer respondents -- just over a third (36%) -- used it occasionally to do these assessments. A very small number (7%) of respondents rarely used the device for this purpose while the rest of them never used it to carry out these tasks.

Over a third (36%) never used the iPad for data management, but less than a third (29%) used it frequently and occasionally for this purpose. Only 7% rarely used it to manage their data.

Nearly half (43%) of respondents used the new technology to mark their students' work, but only occasionally and less than a third (29%) used it frequently. An equal number of respondents (29%) never used it for this purpose.

Chart 6: iPad Usage Overview



The chart above shows the frequency in which the iPad was used for administration, learning types, multimedia and planning. Frequency rates are: *frequently* (blue), *occasionally* (red), *rarely* (green) and *never* (violet).

The iPad was most frequently used to carry out various types of learning (50%) followed by planning (40%), administration (36%) and multimedia (32%).

In the *occasionally* category planning is at the top (36%) followed by administration and learning types (30%) and multimedia (25%).

Administration and planning have the highest percentage (7%) in the *rarely* category followed by multimedia (6%) and learning types (5%).

The highest percentage (37%) in the *never* category goes to multimedia followed by administration (27%), planning (17%) and learning types (14%).

Summary: The iPad was primarily used for online research, multimedia, independent and collaborative learning. It is clear for the participants of this study that the iPad lent itself easily to independent and collaborative learning, but not so much to note taking and far less for personal reflection. The iPad was also used to create or obtain images, audio and video material, but was used less frequently for educational games, presentations, interactive books, planning, and administration.

Student Survey

Exploratory Analysis

Primary data were collected through www.sogosurvey.com. The online link was forwarded via emails to 491 students at FWC and 87 students at FMC. Only 192 students (32%) out of 578 who received the link for participation completed the questionnaire.

The overall reliability coefficient of the instrument gave an r = 0.909 Cronbach alpha. Frequency distribution for the gender is shown in the table below. Table 1 represents gender distribution. It shows that more than three quarters of the respondents are females and less than one quarter of the respondents are males.

Table 1: Exploratory Analysis

Gender	Frequency	Per cent
Male	39	20.4
Female	152	79.6
Total	191	100.0

The respondents were asked questions about how they used the iPad and the questions were grouped into seven main themes. The themes are Activity, Affordances, Independent Learning, Student Linguistic Literacy, Online Research, Collaboration and Brainstorming

An independent samples t-test was conducted to compare the students' frequency of iPad uses for males and females. There was no significant difference in scores for males and females regarding Affordances, Online Research, Collaboration, and Brainstorming. On the contrary, it was found that there is a statistically significant difference in scores for males and females regarding Activity, Independent Learning and Student Linguistic Literacy. Males are more frequent users of iPad functions than females in Activity, Independent Learning and Student Linguistic Literacy.

Table 2: Group Statistics

	Gender	N	Mean	Std. Deviation	Sig. (2-tailed)
Activity	Male	39	3.0833	.52042	.050*
	Female	152	2.8882	.56218	
Affordances	Male	39	3.2821	.60202	.382
	Female	152	3.1859	.61473	
Independent Learning	Male	39	3.2991	.74061	.001*
	Female	152	2.8750	.71545	
Student linguistic literacy	Male	39	3.0623	.56080	.002*
	Female	152	2.7199	.68342	
Online Research	Male	39	3.4103	.75107	.113
	Female	152	3.1579	.91424	
Collaboration	Male	39	3.3077	.79980	.483
	Female	152	3.1974	.89175	
Brainstorming	Male	39	3.3077	.65510	.603
	Female	152	3.3750	.73523	

*Significant at Significant at $p<0.05$

Table 3: iPad Pedagogical Affordances

iPad Classroom Uses	Percent	Frequently	Occasionally	Rarely	Never
Collaborative learning	100%	64%	36%	0%	0%
Independent learning	100%	79%	21%	0%	0%
Multimedia	100%	71%	14%	14%	0%
Online research	100%	71%	21%	7%	0%
Presentations	93%	43%	50%	0%	7%
Educational games	93%	36%	50%	7%	7%
Assessments	86%	43%	36%	7%	14%
Note taking	86%	43%	43%	0%	14%
Interactive books	86%	43%	43%	0%	14%
Mind mapping	86%	14%	57%	14%	14%
Marking student work	79%	29%	43%	0%	29%
Administrative tasks	71%	43%	14%	14%	29%
Classroom management	71%	36%	29%	7%	29%
Data management	64%	29%	29%	7%	36%
Book publishing	64%	29%	14%	14%	43%
Lesson planning	64%	36%	29%	0%	36%
Personal reflection	57%	14%	21%	21%	43%
Painting & drawing	14%	0%	7%	7%	86%

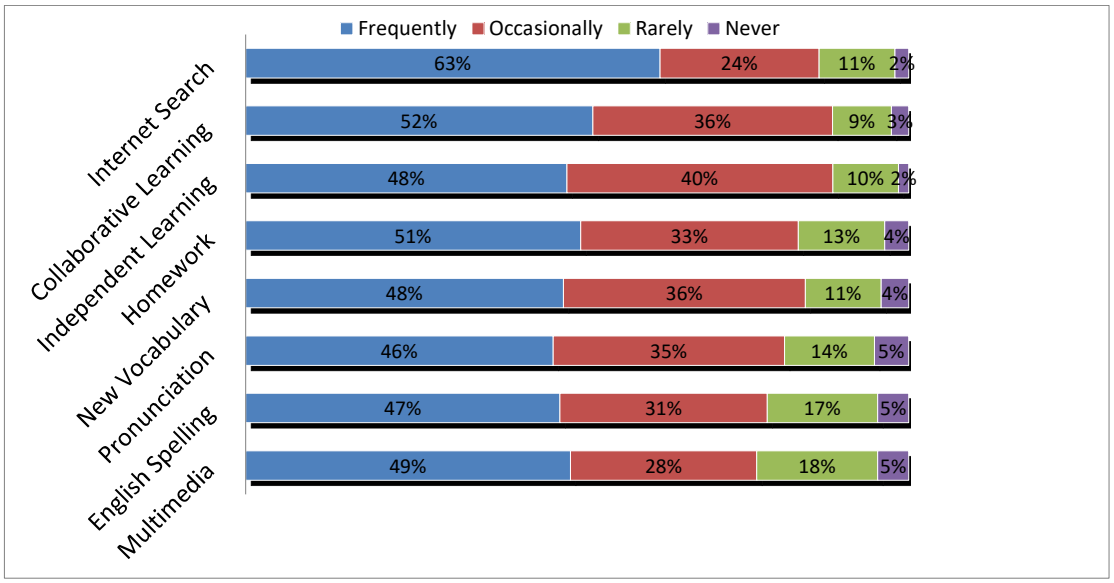
The table above shows the frequency of using the iPad for a total of 21 learning types/activities expressed in percentage terms. Four frequency labels are used: *frequently*, *occasionally*, *rarely* and *never*.

The most frequent activity is Internet search at 63% and the least frequent one is drawing at 8%. The highest percentage of occasionally performed learning goes to collaborative learning at 86% and the lowest percentage of occasionally performed activity goes to drawing (19%).

The activity that scores the highest percentage among the rarely performed is drawing at 36%. At the other end of the spectrum of rarely performed activities is Internet search, which scores only 11%.

Drawing also scores the highest percentage among the never performed activities (36%), which contrasts sharply with the 2% scored by Internet search – the lowest of the never performed activities.

Chart 7: iPad-Based Learning Activities



This chart shows the types of learning/activity for which the iPad was used.

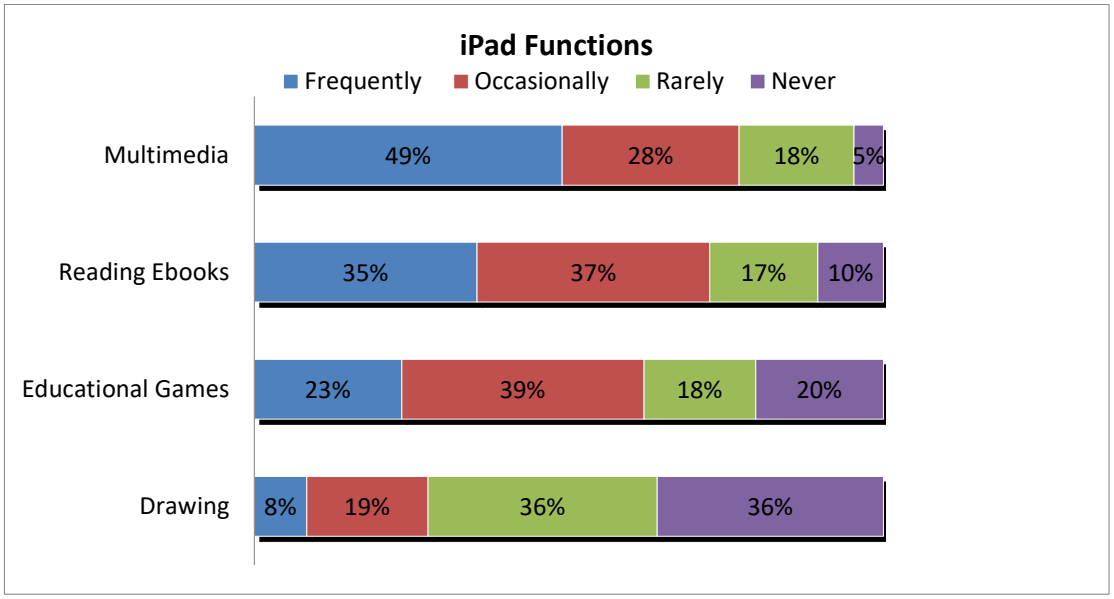
Internet search was the most frequent activity standing at 63%. Collaborative learning comes second at 52% and homework stands at 51% followed closely by independent learning, new vocabulary, pronunciation practice, English spelling and multimedia.

Independent learning has the highest percentage of occasionally performed activity (40%), whereas multimedia has the lowest (28%). The other types of learning/activity fall in between these two.

In the rarely category multimedia is the highest (18%) followed by English spelling (17%) and pronunciation (14%). The lowest percentage of 9% in this category goes to collaborative learning.

The very small percentage of 5% goes to multimedia, English spelling and pronunciation in the never category. These are followed by homework and learning new vocabulary at 4% each. The smallest percentage of 2% goes to Internet search and independent learning, but collaborative learning stands a little higher at 3%.

Chart 8: iPad-Based Pedagogical Affordances



The chart above has four frequency labels: *frequently* (blue), *occasionally* (read), *rarely* (green) and *never* (violet). It displays on its Y-axis four iPad activities: Multimedia, Reading eBooks, Educational Games and Drawing.

Nearly half the respondents (49%) used the iPad frequently to perform activities involving the use of multimedia. Less than one third (28%) of these respondents used it occasionally to perform the same activities, whereas 18% of them rarely used it for these activities and only 5% of them never used the iPad for this purpose.

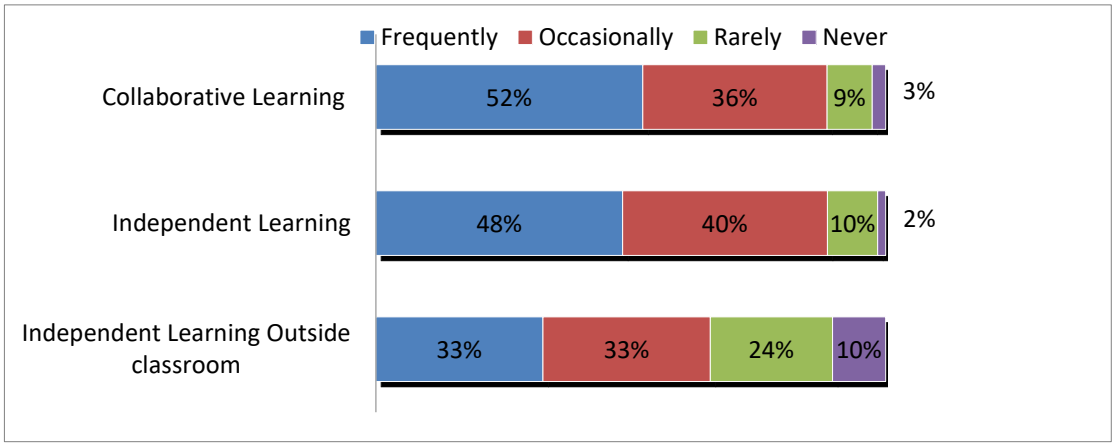
As for reading e-books, just over a third (35%) of the respondents used the new technology frequently for this purpose and slightly more respondents (37%) used it occasionally. Only 17% rarely used it for reading e-books. This percentage is almost the same as that of the respondents who rarely used the technology to carry out activities and tasks in which multimedia is used. The respondents who never used the iPad for reading e-books make up 10%, which is double the percentage (5%) of those who never used it for multimedia.

Thirty nine per cent of respondents used the iPad to play educational games occasionally, whereas only 23% of them played these games frequently.

In the *rarely* category, playing educational games, reading e-books and doing multimedia activities stand close to each other (18%, 17% & 18%). However, those who never played educational games (20%) is twice as many as those who never read e-books (10%) and four times as those who never used the technology to perform activities involving multimedia (5%).

Finally, drawing attracted only 8% of respondents who performed it frequently compared to 23% for educational games, 35% for reading e-books and 49% for multimedia. Only 19% of respondents performed this activity occasionally, but those who rarely or never did it are nearly twice as many (36%).

Chart 9: iPad-Based Learning



The chart above shows that the students used the iPad for collaborative and independent learning inside and outside the classroom. The frequency labels are color-coded as follows: *frequently* (blue), *occasionally* (red), *rarely* (green) and *never* (violet).

Over half the students (52%) used the iPad frequently for collaborative learning, more than a third (36%) used it occasionally, 9% rarely used it and only 3% never used it for this type of learning.

The picture is not very different for independent learning where nearly half the students (48%) used the new technology frequently, 40% used it occasionally, 10% rarely used it and only 2% never used it for this type of learning.

Fewer students used the iPad frequently and occasionally for independent learning outside the classroom as opposed to inside it (33%). However, those who rarely used it outside the classroom (24%) is more than double those who rarely used it inside the classroom (10%) and the difference is even larger for those who never used it outside the classroom: they are five times as many as those who never used it inside the classroom.

Summary: The iPad is used mostly for Internet search (63%) followed closely by collaborative learning (62%), homework (61%) and independent learning (48%). However, collaborative and independent learning inside the classroom exceeds that done outside the classroom.

General Comments

Mobile technologies of which the iPad is a good example promote informal learning, which takes place in various contexts including the classroom. Students learn as they move and act in diverse environments. As a result, the teacher plays a double role: she teaches when the students are inside the classroom, but facilitates, helps and guides when they are moving around in other environments (Wong, 2012).

Research has shown that independent access and individual ownership makes the iPad an effective learning tool. It allows learners to supplement their learning not only outside the classroom, but also inside it (Falloon & Melhuish, 2010).

They can carry out a web-based inquiry, write digital notes and download apps. However, other technologies such as laptops allow learners to do the same, but the advantage of the iPad is the ease with which apps can be downloaded and some are free (Henderson & Yeow, 2012).

The surveys of this inquiry also show that collaborative learning plays an important role in the work of both students and faculty. Some researchers have suggested that the iPad allows a higher degree of collaboration among students and teachers than laptops and desktop computers. Gaudet (2013) suggests that by using the iPad, small groups of learners can listen to their recordings, give constructive feedback and share data. Working on a joint project, these learners can make their individual contributions using one iPad. While doing so, their teachers can circulate and help them solve problems, give feedback and enhance their learners' ability to learn the language aided by technology (Gaudet, 2013).

The surveys demonstrate that both teachers and students use the iPad for activities involving images, audio and video material (multimedia). This is compatible with the literature on tablet computers, which shows the ability of these computers to generate images and run audio and video files to promote active learning.

The class observations conducted in the course of this study revealed that despite their young age, the learners in these classes displayed variations in their abilities to understand and efficiently use digital technologies like the iPad to boost their learning. The study also has shown that the better their language skills are, the quicker the learners understand the technology and the more competently they use it in their learning.

Finally, both teachers and students carry out and on a regular basis online research, looking for study material, information and data they need to complete tasks and assignments.

Discussion

iPad Use Surveys

The teacher and students surveys carried out at the start of this study provide an overview of how the Foundations Program teachers and students used the iPad to carry out various tasks and activities and how often they carried them out. The results were converted into charts and tables and later analysed.

Since the surveys were designed to give only an overview of iPad usage without trying to provide explanations supported by large banks of data, their generalizability and explanatory potential is limited. This has resulted in them being of limited benefit to this study which has sought to describe and explain the circumstances in which the iPad was introduced to the Foundations Program at the two Fujairah colleges, how the Program's teachers and students used the iPad to enhance their teaching and learning, how they felt about the new technology and what they did to overcome the challenges arising from the change to their teaching and learning environment. If I were to conduct a similar study in the future, I would design more in-depth surveys that would provide a more varied and layered picture of the usage of the iPad in the same context.

Still, the surveys have provided some insights into how the teachers and students used the iPad. The teachers used it to carry out various tasks and activities, with some more frequently than others. For example, they used the iPad most frequently to do online searches and create multimedia artifacts. On the other hand, they hardly used the iPad for arts activities such as painting and drawing. In between these two extremes, they used the new technology to engage in other activities such as assessments or marking students' work.

Interestingly, the students' survey draws an almost parallel picture to that drawn by their teachers' survey. Once again, the four most frequently performed activities and tasks the students used the iPad for were online searches, activities involving the use of multimedia and independent and collaborative learning. Of course, the iPad was used to carry out other tasks and activities such as note taking, mind mapping and personal reflection, but these were done less frequently than the top main tasks and activities discussed above.

5. Conclusion

The study's two surveys have contributed to the building of an overall picture of the uses of the iPad by both teachers and students. The results of these surveys found echo in the findings extracted from the analysis of the qualitative data collected from class observations and teacher interviews. This has enhanced the validity of the study's findings.

The teacher interview data for this study provided evidence that the use of the iPad promoted student engagement with the material taught and enhanced their focus on the activities and tasks involving the new technology. This was attributed to the visually appealing material generated by the iPad's different apps and to the fact that the new technology created a learning

context where the students were able to take control of their learning and construct it in a manner that strengthened its effectiveness.

The data also provide evidence that the variety of iPad apps available to the students and teachers gave them the tools to develop their creativity and enhance their efficiency. Using these apps, the teachers were able to give timely feedback to their students and share resources among themselves and with these students. The students, on the other hand, were able to share resources with their peers and enhance their communication with each other and with their teachers.

The study has also shown that the iPad has been instrumental in improving the teachers' assessments of their students' performance thanks to certain apps designed for this purpose. The technology also paved the way for the creation of the paperless classroom and encouraged the teachers to pursue professional development. The goal of these efforts was to keep their skills up to date and stay current with the latest development in educational technology in general and mobile technology in particular.

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