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Message from the Editor-in-Chief

Hello from TOJDEL

TOJDEL welcomes you. TOJDEL looks for academic articles on the issues of distance education and e-learning and may address assessment, attitudes, beliefs, curriculum, equity, research, translating research into practice, learning theory, alternative conceptions, socio-cultural issues, special populations, and integration of subjects. The articles should discuss the perspectives of students, teachers, school administrators and communities. TOJDEL contributes to the development of both theory and practice in the field of distance education and e-learning. TOJDEL accepts academically robust papers, topical articles and case studies that contribute to the area of research in distance education and e-learning.

The aim of TOJDEL is to help students, teachers, school administrators and communities better understand how to organize distance education for learning and teaching activities. The submitted articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to TOJDEL. TOJDEL provides perspectives on topics relevant to the study, implementation and management of learning with technology.

I am always honored to be the editor in chief of TOJDEL. Many persons gave their valuable contributions for this issue.

TOJDEL, TASET, Governor State University, Vienna University of Technology & Sakarya University will organize the IDEC-2016 International Distance Education Conference (IDEC 2016) (www.id-ec.net) between February 04-04, 2016 in Dubai, UAE.

Call for Papers

TOJDEL invites article contributions. Submitted articles should be about all aspects of distance education and e-learning. These research papers may address assessment, attitudes, beliefs, curriculum, equity, research, translating research into practice, learning theory, alternative conceptions, socio-cultural issues, special populations, and integration of subjects. The articles should also discuss the perspectives of students, teachers, school administrators and communities.

The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to TOJDEL.

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October 01, 2015

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AN EXAMINATION OF THE ONLINE VERSUS F2F ACADEMIC PERFORMANCE OF NON-TRADITIONAL UNDERGRADUATE BUSINESS SCHOOL STUDENTS

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Abstract: Online collegiate education offers students access to higher education, irrespective of their proximity to the university. Non-traditional student populations benefit from online education because they often work full time and are parents of young children. They can still earn a degree, despite their work and familial obligations. However, the results are mixed regarding the academic performance of students in online courses, relative to courses that are taught face to face (F2F). These students are generally not online education-savvy. They require extensive orientation to online learning norms and processes, and need large quantities of professor-student online interactions. Failure of university administrators and professors to recognize their needs and/or to institutionalize the responses to their needs can negatively affect students' academic performance in online courses, relative to F2F courses. This study compares the academic performance of non-traditional undergraduate business majors in online and F2F courses. The authors also discuss students' knowledge of online learning norms and the course platform prior to enrolling in online courses and how this can impact their course performance.

Keywords: online education; academic performance; face-to-face education; education; delivery method

AN EXAMINATION OF THE ONLINE VERSUS F2F ACADEMIC PERFORMANCE OF NON-TRADITIONAL UNDERGRADUATE BUSINESS SCHOOL STUDENTS

As the numbers of online educational institutions has increased, students are flocking to these programs. Traditional universities are adapting to this growing phenomena by offering their own fully online degree programs and/or increasing their numbers of online class offerings. Studies have found that online collegiate education offers many benefits for students (Cater, Michel, & Varela, 2012). Students have access to higher education that they may, otherwise, not have because they are not physically close to the university (Bressler, Bressler, & Bressler, 2010; Humphrey & Harbin, 2010). This is particularly beneficial to non-traditional student populations who, by definition, are often returning to school after having been away many years, they work full time and many have school-aged children. Online education enables them to earn a degree, in spite of their work and familial obligations (Brown & Park, 2015).

Also, online education offers significant benefits to universities, whether they are 100% online institutions or traditional institutions. Web-based course instruction provides institutions of higher education with new markets. That is, universities can increase their enrollment without having to increase or, otherwise, physically alter their classroom space. Given that many universities suffered financial challenges associated with the recession in the late 2000's (Brown & Hoxby, 2014), opportunities to increase their enrollment can be quite beneficial. Online education increases the global knowledge of and exposure to the institutions' course offerings, professors, and other attributes (Carthan, 2007) and is a potential way for universities to grow.

However, students may not gain all of online education's benefits nor do students necessarily perform better in online courses than in face to face (F2F) course settings. Some institutions offer online course orientations to students so that they can become familiar with the course platform and web-based instruction norms. However, many colleges and universities do not mandate completion of an online orientation prior to students' enrolling in online courses. Thus, students often enroll in web-based courses without having any idea

of how to navigate the course and, more generally, how to learn effectively online. This can negatively affect their course performance.

Also, faculty may not be well-versed in effective online teaching (Omar, Kalulu, Alijani, 2011). Some universities offer formalized online course instruction to faculty, but it is often not a requirement to teach online. Professors' variation in technological knowledge limits the extent to which faculty utilize the features of a course platform, though such features can enhance students' learning (Smith, 2005). Some online classes primarily consist of professors requiring students to post typed assignments and respond to discussion board posts. In other courses, professors utilize the web to teach in real-time, they record lectures for students to see and hear, they host online chat forums, etc. Thus, students may not gain as much knowledge from an online course, relative to F2F courses, because the faculty member is not knowledgeable of how to teach effectively online.

Finally, online instruction involves large quantities of professor-student interactions. Students may not be accustomed to having to wait for a response from the professor to questions or comments that they have about the course. Faculty often complain that though online teaching does not necessitate physically being in a specific place, it is more time-consuming than F2F instruction because students contact faculty any time and expect relatively fast responses from their professors. Also, faculty must spend more time explaining assignment expectations and giving feedback than in F2F settings (Omar, Kalulu, Alijani, 2011), namely because the online environment lends itself to greater confusion and misunderstandings than the F2F setting.

These issues can affect online course performance and, thus, retention of non-traditional college students. Working full time and their familial obligations can already affect their focus on academics. Then, there is the added burden of them often being less familiar with online educational norms relative to their more traditional collegiate peers (Wilkes et al., 2006). Students' limited knowledge of web-based instruction norms and processes and/or their need for active faculty-student interactions and consistent course performance feedback can contribute to students not performing as well in online courses compared to F2F courses (Omar, Kalulu, Alijani, 2011). This can lead to students' dropping courses and, eventually, dropping out of school, particularly if many of their required courses are online. This negatively affects the students' career prospects, their perspective of the institution that they dropped out of and, ultimately, universities' retention rates.

This study analyzes non-traditional students' online versus F2F academic performance to determine how they perform in both course settings. Second, the authors discuss the potential impact of students' prior online course knowledge on their course performance. The study concludes by proposing teaching and institutional enhancements to the online learning environment.

LITERATURE REVIEW

Online education is growing in popularity due to the simplicity it creates in the complex setting of education. Allen and Seaman (2011) reported that over six million students enrolled in at least one online course during the Fall 2010 academic session, and by 2011, almost 31 percent of all college students were taking some kind of online course. Technological applications associated with online education provide the environment that cultivates all of the academic activities for a course, as well as the setting to develop networks between the students in the course. Students can share and participate in the creation of knowledge together. Many people turn to online education because it is a very effective way to fit education into the busy lives of working people who do not have the time to sit in a traditional classroom.

Online education also provides an educational avenue for people who have the time to attend school, but don't have the physical university in close proximity for them to attend. DiRienzo and Lilly (2014) argue that the increase in the number of online programs is due to students' demanding more ways to access higher education and online education is a cost-effective way for institutions increase their enrollment. The main benefits of online education for students include: the material can be delivered to anyone, anywhere with internet access; the opportunity for real-time interactions among students and professors via the internet; the opportunity for students to control the pace for their learning experience and some employers reimburse employees for returning to school, which incents them to increase their education and also increases work productivity (Evans & Hasse, 2001). More generally, the growth of online education increases the education and skill-set of society, as a whole.

The non-traditional undergraduate student in U.S. is normally over 25 years of age (Casselmann, 2013). They work full-time and have families. Most didn't go straight to college after high school or they started and could not finish at the time, but returned to complete their education. Though this is not exclusive to every non-traditional student, they tend to fall in this arena. Thus, there is obviously a market for online education, in terms of adults seeking a college education that also fits within their working lives. As students become more

dependent on technology for day-to-day activities, the push for using technology for the delivery of that education is increasing. But these factors do not necessarily mean that online education is the most effective form of education for non-traditional students.

Students in online classes have a more limited capacity to interact with their instructor and their peers, whereas students in F2F classes solicit help from each other and the instructor more often than in online courses, given their physical proximity during class and between classes, too (Bejerano, 2008). Therefore, F2F students tend to have a closer relationship with their professors than students in online classes. Also, online students have to be more efficient with their time and be self-disciplined, due to the independent learning nature of the course. The lack of these traits can cause students to drop out because they become frustrated with the course format and, then, discouraged due to their often-poor performance in the online class. This is especially true for first-time college students and those who returned to school after years of absence. They miss out on the class time resources and nearness to peers and professors that students have in the F2F classroom setting. When F2F students are performing badly in a course, they are more likely to solicit help from their peers and their professor than will online students.

Therefore, faculty interaction is imperative to the success of students in online learning. Students need feedback on their work that is detailed and timely. When faculty are very interactive online, it increases students' engagement in the course and positively affects their course performance. Conversely, when faculty are not very engaged, online students tend not to perform as well as their F2F counterparts (Sull, 2013).

Finally, online education necessitates that students learn how to use a possibly new software (the course platform), oftentimes while they are enrolled in the course. This is because many institutions do not mandate that students (nor faculty) complete an online orientation to the course platform prior to enrolling in an online course. Thus, students experience the learning curve of trying to understand the course platform, while simultaneously having to use the software in order to complete their course. This can obviously negatively affect their course performance.

These differences between the two types of learning environments affect students' learning. Students in online courses have a lower performance rate compared to F2F courses because they do not have the student and faculty interaction resources that they get in F2F courses (Brown & Liedholm, 2002; Coates et al., 2004) nor have mastered the time management and self-discipline skills needed for online course success. However, other research suggests that it does not matter the delivery of the material, but rather it is the student population itself that makes a difference in the performance in online versus F2F settings (DiRienzo & Lilly, 2014). That is, students who are more technologically-savvy, organized and individually motivated to perform well are likely to succeed in online courses. Still, Cyrs (1997) argued that it is the correct matching-up of the course material and the correct use of media (the delivery method) that determines students' course performance. Without a correct match between the material and delivery, the student won't be perform well, whether the course is online or F2F.

Online education can also be challenging to the faculty. There are no limitations on the contact hours or the time that students need to pose questions about assignments. Transferring knowledge from the F2F material to the online class can be time-consuming and increase class preparation time tremendously. Faculty can also find it difficult to communicate the exact meaning of the information they are trying to convey due to the barriers created by the lack of personal interaction experienced in the online course. Thus, the method of communication is often reduced to emails and, sometimes, online chatting. People may be very direct and straight to the point in their communiques, but the messages can still be taken out of context, possibly causing major misunderstandings among students and faculty. In the F2F setting, the student/faculty interactions can easily be interpreted and there is the opportunity to address any misunderstandings immediately (Bejerano, 2008).

Wilkes, Simon, and Brooks (2006) also found that faculty perceptions of online teaching were negative due to the online delivery and integrity of that delivery. Faculty were not confident that the students are actually learning the material intended for the course, particularly at the undergraduate level. That is, they were not clear that the students achieved the learning objectives of the course. Conversely, the undergraduate students in the study were quite receptive to the online delivery of course material, particularly the "traditional" students. Online course delivery allowed them more freedom to do other things with their time and gain easier access to a degree.

The variation in the type of student (traditional versus non-traditional) in online courses, the variation in students' familiarity with online learning norms and the course formats, the mode of course delivery, and the faculty's familiarity with and usage of the course formats' features all affect students' course performance. This study investigates this issue by examining the course performance of non-traditional students in online versus F2F courses. The first research question is "How does students' performance in online courses compare to their performance in the same courses delivered F2F?" The study also addresses the question, "How does students'

knowledge of the online course platform and familiarity with online interaction norms contribute to their perceptions of their course performance?”

Most studies of undergraduate education focus on traditional student populations. However, online education attracts many non-traditional students. This study contributes to the body of literature regarding non-traditional students' performance in online courses. It concerns students who are new to the academic environment (or returning after a long absence), but are fairly experienced in terms of age and years of work experience. As noted in the literature review, their learning needs and course expectations may differ from those of traditional college students. In addition, the study addresses the extent to which familiarity with online course software can affect students' perceptions of their course performance.

STUDY METHODS

This research examines the course performance of upper level undergraduate, non-traditional students, who are business majors. The focus is on students who were enrolled in Management and Marketing courses. The data stem from F2F and online Marketing and Management courses taught during the Fall, Spring, and Summer terms of 2012-2014. The courses were taught at a mid-size university located in the Southwest region of the U.S. One professor taught all of the Management courses and another professor taught all of the Marketing courses. The courses were required for students' earn a business degree. Though the university has some dormitories, it is primarily a commuter school. Most of the undergraduate students do not live on campus, they work 30 or more hours per week, and many have infants and/or school-aged children. Students tend to arrange their class schedules around their work schedules. The average age of the undergraduate population is about 26 and the university is about 45% male and 55% female. About 30% of students transfer from community colleges to attend the university. Most students pay for their schooling through loans, grants, their employers and with their own monies. In addition to F2F degree programs, the university also has three 100% online graduate degree programs and offers many undergraduate courses in online and F2F formats. However, neither students nor faculty are required to complete an online course platform orientation prior to enrolling in or teaching an online course.

This study is qualitative, such that it does not involve inferential statistics. It consists of numerical data and open-ended survey data to address the research question. The numerical data are students' final numerical grade earned in a total of 20 online and F2F Management and Marketing courses. The courses are in pairs, such that each pair consists of the same course taught in both formats. The courses were evenly divided between Management and Marketing; five Management courses (each taught online and F2F) and five Marketing courses (each taught online and F2F). Each F2F class had about 45 students and each online class had at least 20 students. As noted in Table 1 below, the total sample analyzed was 664 students and was relatively evenly split numerically between Management and Marketing students. The authors analyzed the numerical data by comparing the proportions of course performance (grades) between the online and F2F students on whether students were passing the course (earning at least a “C” grade) or not (earning below a “C” grade). The authors also compared the proportions of online versus F2F students who dropped the class prior to the semester's end.

Table 1

Students	F2F Courses	Online Courses	Total
Marketing Students	229	100	329
Management Students	225	110	335
Total	454	210	664

Seventeen students were surveyed about their experience and performance in the online and F2F courses. They were recruited to complete the survey by way of snowball sampling and their participation was voluntary. No incentives were given for students to complete the survey beyond the request itself. The students who completed the survey had at least one complete semester pass after they had taken the course. This was done to ensure they would remember their course experience and also allowed some time to pass for them to be somewhat objective in their assessment of the course. The students voluntarily completed an open-ended questionnaire that had these five questions: 1. How would you describe your experience in this course? 2. What did you learn from the course? 3. What was your grade in the course? 4. Why do you think that you received that grade in the course? 5. Do you think your grade was affected by the course being F2F or online? If yes, explain

why. If no, explain why not. Nine respondents were from the online courses (four in Management; five in Marketing) and eight were from the F2F courses (four in Management; four in Marketing).

The objective of the questionnaire was to obtain the participants' thoughts regarding their course experience and performance perceptions to determine if they believed that the course delivery method had any impact. The authors focused on patterns in the participants' responses, which provided a nuanced understanding of the numerical results. The patterns were identified by inputting the text into Atlas ti.; a qualitative analysis software program. Then, the replies were coded based on a grouping (i.e. impact of course delivery method on course experience and performance) that was defined prior to analyzing the comments to ensure that the phenomena revealed in the data were properly identified. The results were determined by whether the respondents' comments stated or, otherwise, utilized language suggesting that the course delivery format (online or F2F) impacted their course experience and performance.

RESULTS

Though there was some variation in the course performance and the proportions of retention versus dropout rates between the Management and Marketing courses, the pattern of the results were similar. Students performed better in the F2F courses than online and were less likely drop out of the F2F courses, too. In Management, 30% of the online students earned a "D" (defined as between a 60-69% final grade) or less in their classes versus 24% of the F2F students. In addition, 40% of the online students dropped the class versus 20% of the F2F students. In Marketing, 47% of the online students earned a "D" or less in the class versus 6% of the F2F students. Forty percent of the online Marketing students dropped the class compared to 5% of the F2F students.

Thus, in this sample, online education did not yield similar academic outcomes for students as F2F. This is particularly interesting, given that this student population is precisely the group for whom online education is expected to benefit the most: non-traditional students who work full-time and often have familial obligations. The results from the questionnaire below provide insight into students' perceptions regarding why they did not perform well in their online courses.

One common concern that students expressed related to lack of familiarity with online academic interactions, which hindered their course participation. A few also were not familiar with the course platform, which they suggested negatively affected their ability to access course assignments and stay abreast of course deadlines.

"I think my face to face courses offered many different levels of input my online course didn't, such as instant peer feedback on class topics, relevant examples about the course material by the professor, and effortless collaboration with group assignments. It took a long time for the professor to answer questions" (Male student, online Management course).

"I wasn't too sure how to use [the course platform] at first, it took a while get that, but it's why I got behind on a couple assignments" (Female student, online Management course).

"In the beginning of the course, my thoughts were that this course is easy and I should make an A. But, I soon figured out, I had to get acclimated to an online class; it was not the same as my other (F2F) classes with the exact same professor" (Female student, online Marketing course).

"We had a lot of work due twice per week. The instructor only used YouTube videos of himself to give some instruction; this was not as easy as I thought it would be" (Female student, online Marketing course).

"I had a hard time with [the course platform]. I think the professor should've allowed for the fact that some of us had never used [the course platform] before" (Male student, online Management course).

"Personally, I learn best face to face. If the class were an online class, I would not be as engaged. I like getting instant answers to questions [from professors], not waiting for an email" (Female student, F2F Management course).

"I, personally, prefer face-to-face classes over online classes because you are able to learn and ask questions with the professor present; and you are in an environment with students which gives you more interactive learning experiences over the course of the semester" (Male student, Marketing F2F class).

Of course, some students had excellent F2F or online course experiences. They tended to attribute their experiences to the professor's classroom management and their own internal motivation to perform.

"I had a very good experience. I have taken online courses before in which students were able to "wing it". This course was not the case. Students were required to participate and participation was monitored and evaluated. I appreciated the prompt feedback that I received from [the professor]. I learned that it could be challenging to work in online teams, but through effective communication, accountability, and follow up online teams can be as productive as in person teams. [My grade] was not affected by the class being online. The

energy and effort that was required of me would have yielded success in any environment” (Male student, online Management course).

“The course content was engaging. I feel as though I learned more from reading the books than reading a textbook. I learned about the responsibility of an organization on a social, political, and ethical/unethical levels. I also embraced my ability to be more assertive and effectively communicate my point of view as well as facts regarding certain topics...I was engaged and met the expectations of the course” (Male student, F2F Management course).

“I learned a lot in my online class. I earned an A for doing all my work and being dedicated to the class. My grade was not affected because it was an online class. The instructor made this class very easy, but we had a lot of work due” (Female student, online Marketing course).

Sometime students do not have access to online classes because of a lack of space in an online course section or the class is not offered online at all. In these cases, they are often times forced to take a F2F class. Some respondents felt this is not the best option to accommodate their lifestyle, especially if the class required class attendance and participation, because of their work and family obligations. Hence, their performance in F2F classes was negative, relative to online classes. One student who completed the questionnaire had that experience:

“This course was face-to-face. The delivery in the course was not as I thought it should have been. The professor slightly strayed away from the subject from time to time and the exams weren’t over his lectures. If the course was online, I could have completed the work at hand at my own leisure (also completing the assignments on schedule). Attendance would not be a factor in my grade. I scored relatively high on the exams, project and assignments. The attendance score dropped my grade down to a B-. If it were online, I would not have had this issue.” (Female student, F2F Marketing course)

The students in this study did not perform better or equally as well as their F2F counterparts. This supports prior research (Bejerano, 2008) that students don’t always experience the expected learning outcomes from online education. However, based on the admittedly small sample of comments from the respondents, performance in online courses is also affected by professor’s online classroom management and, importantly, the extent to which students are comfortable with using the course platform. Not knowing how to use the course platform can cause students’ to not complete assignments or complete them incorrectly, which hurts their grades. In addition, if they are not used to online academic interaction norms, this can also hurt their course performance.

DISCUSSION AND CONCLUSIONS

Though online education has grown in the past decade, its contribution to students’ learning and performance is mixed (Omar, Kalulu, Alijani, 2011). Issues surrounding students’ familiarity with online teaching norms and the course platform and the extent to which faculty foster interactions online and effectively utilize the course platform’s features all affect the viability of online education. This is in spite of the fact that online education is expected to benefit non-traditional students in ways that are not present with F2F classes or traditional student populations. Namely, online education enables working adults to gain an education without interrupting their work or family lives. However, the benefits of online education may be more applicable to the delivery method (online), but not necessarily apply to students’ performance. This dichotomy may not be a function of online education itself. Rather, it may be a function of students’ and faculty’s knowledge of and comfort with the online learning environment.

This study examined the course performance of online versus F2F undergraduate students majoring in business, with specific focus on their performance in Management and Marketing courses. Performance was measured by students’ numerical final course grades and the study also investigated the proportions of online and F2F students who dropped the class prior to the course’s completion. The investigation included the proportions of students who dropped the class because students generally drop if they are not performing well in a class and studies have found that online students are more likely to drop courses than F2F students (Bejerano, 2008).

Overall, a greater proportion of online students failed their courses than F2F students. This pattern was true in both Management and Marketing courses. While there were obviously variations in course content, faculty teaching styles and grading rubrics between the two types of courses, that was not the focus of this study. Instead, the study examined students’ performance across the two courses, Management and Marketing. The outcomes were similar: more online students received a “D” or lower grade in the courses than F2F students. Also, a greater proportion of online students dropped their course before completing the term than F2F students.

Though there can be extenuating circumstances that cause students to drop classes, students generally don't drop classes that they are passing. Though not tested directly in this study, it is reasonable to suggest that most of the students who dropped the class were probably not performing well in it, anyway.

As the courses were required major courses, the students who dropped the class would probably have to take it again in order to complete their degree. The decision for juniors and seniors in college to drop a major course is not usually taken lightly because they have to earn a passing grade (at least a "C") in the class in order for it to count towards their graduation requirements. As this student population is non-traditional, their education is generally be funded by themselves and/or their employers. Therefore, dropping a required class prolongs graduation and is costly, as they have to retake (and pay for) the class.

The second purpose of this investigation was to explore the extent to which students' familiarity with the online course platform and online academic interactions affected their perceptions of their course performance. Seventeen students completed a questionnaire regarding their course experiences. The authors' goal was to gain insight as to why students believed that they received their course grade and to determine if they thought the mode of delivery (online or F2F) was a contributing factor.

Generally, the students who performed well in the online and F2F courses attributed their performance mostly to their own initiative and, secondarily, to the faculty who taught the class. They expressed confidence in their own abilities to perform well in the class. Also, they perceived that the course content, the class interaction fostered by the faculty and the faculty's performance feedback to the students were clear contributors to their final course grade.

None of the F2F students who completed the survey reported failing the course, unlike seven of the online students who completed the survey. The latter blamed their course failures mostly on their own lack of knowledge of the course platform and online learning norms, and the faculty's online classroom management. They believed that their difficulty with navigating the course platform and, generally, not being familiar with the self-driven nature of online learning were primary reasons why they failed the class. They also suggested that the faculty did not enhance students' online engagement, such as by not responding to students' questions quickly. Though the authors realize that students were probably motivated not to disclose their own possible lack of effort towards passing the course, this was not the focus of this study.

Instead, in this study, it was evident the online classes may have provided convenience benefits to the students, but did not positively contribute to students' course performance to the same degree as F2F classes. However, the reasons for this performance dichotomy do not appear to be caused by online education, itself. Instead, the issues might be related to students' comfort with the online learning environment.

First, students in F2F classes have visual and verbal interactions with their peers and the faculty. Even if a student is failing the class, they may not drop it in the belief that their class attendance, class participation, and rapport with the faculty will help them earn a passing grade in the class. However, in online classes, students typically don't have those immediate visual and verbal interactions with classmates and faculty. They probably don't believe that they will gain rapport-related concessions in their final grade from the faculty, as F2F students may. So, if an online student is failing a class, they will probably drop it prior to the course withdrawal deadline.

Faculty in online courses can foster both an interactive learning environment and develop a rapport with students. These authors argue that this is probably crucial to first-time online learners' course experience. Professors can provide detailed feedback on students' work within 24 hours, they can host online office hours using video and telephone, they can host real-time video classes (though it is suggested that professors not mandate students to attend/log in at a specified time as that defeats the asynchronous value of online education), they can record and archive lectures, they can host discussion board forums that require students to share information about themselves (e.g. employment; career-aspirations, etc.) and they can require students to respond to each other's work on the forums with detailed comments. Also, by developing an online rapport with students, faculty gain a baseline from which to check on a student if their performance decreases suddenly, as this could be due to extenuating circumstances, such as a job loss. It is important to remember that the faculty set the tone for the classroom, both online and F2F. If the faculty member is not leading the way for engagement nor participation, the entire classroom dynamic will be affected and reflected in the students' performance.

These proposed online course norms can be time-consuming for faculty who teach online. However, this can be managed by faculty not only stating the course expectations and format up front in the syllabus, but then adhering to it religiously. If, for example, the syllabus states that the professor will respond to all emails within 24 hours of being received, then he/she can allow a set time each day to address those emails. This is more time efficient than responding to every email as they are received.

Some students seemed to have challenges with understanding and fully utilizing their university's online course platform. In this study, students could enroll in an online class without having advance knowledge of how to use the platform and faculty could also teach online without any advance course platform preparation.

Therefore, some students had difficulty fully participating in the course because they were learning the platform while simultaneously taking the class that utilized the platform. Though the study obviously did not survey faculty, it's possible that faculty were also not well-versed in using the platform, though they were using it to teach their online class. This is akin to learning how to swim when one is thrown into a pool. It's not the most efficient nor effective way to learn.

Instead, universities should mandate that all faculty and students complete an online course platform orientation before they either teach or enroll in an online course (Harrell, 2008). The orientation can part of the platform itself and managed by the school's information technology department or whichever entity already manages the school's online course platform. There are several benefits of this suggestion for students and universities. First, students may perform better in their online courses, which can improve their own graduation rate and, ultimately, universities' retention rates. Second, it will probably increase the usage of all the platform's features by both faculty and student. This increases the usage return on the school's investment in the technology. Second, more faculty may be willing to teach online, if they are taught how to use the technology fully and correctly. This can benefit traditional universities who seek to increase their online course offerings.

All studies have limitations and the study herein is no exception. As this is a qualitative study, the results are not generalizable to the larger population. In addition, as is common with open-ended questionnaires, the participant responses were small in number.

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BEST PRACTICES FOR TEACHING EFFECTIVE SOCIAL WORK WRITING SKILLS ONLINE

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Abstract: A number of research studies have documented problematic issues with student writing in undergraduate and graduate programs in the United States. Some discipline-specific writing courses have been developed to address these deficiencies, including some all online offerings. This paper critically synthesizes the latest available research on best practices in teaching effective writing in an online format, with a focus on social work graduate students. However, the teaching modalities examined herein can be applied in online writing courses in all human services professions and at all levels.

Keywords: graduate writing, online teaching, best practices, social work writing, professional writing

Best Practices for Teaching Effective Social Work Writing Skills Online

Educators in higher education across the U.S. often lament the poor quality of writing manifested by their incoming and continuing students (Grise-Owens & Crum, 2012; Lillis & Turner, 2001; Ondrusek, 2012). Individual faculty members and educational programs work to address this concern by making curricular adjustments, adapting teaching strategies, and offering student support mechanisms such as writing centers. However, despite these proactive mechanisms, the problem persists and professional writing skills appear to have declined in graduate programs in many academic disciplines (Plakhotnik & Rocco, 2012). These deficiencies can negatively impact both academic performance and the ability to write effectively post-graduation.

This article affords an overview of the problem of poor writing in graduate programs and discusses its ramifications on both academic performance and more specifically, professional social work practice. It also synthesizes best practices for teaching professional writing in an all-online format and establishes this skill as a necessary component of effective graduate social work education.

Overview of the Problem

A number of factors have contributed to the decline in the quality of graduate student writing skills in higher education in the United States. Contextually, higher graduate admission rates due to institutional financial pressures and fewer students seeking graduate education have led to increased competition for student admissions, negatively influencing admission practices (Sowbel, 2012; Allum, Bell, & Sowell, 2012). In social work education, the number of accredited social work programs has doubled in the past 20 years (from 99 in 1990 to 200 in 2010), while acceptance rates have jumped from 41% in 1975 to 75% in 2005 (Sowbel, 2012). This trend has diversified the quality of students entering these programs and brought with it a problem in terms of adequate qualification and preparation for graduate school. As well, in a profession where few students are terminated from educational programs for significant academic deficiencies, this ratio is particularly significant (Sowbel, 2012).

Professional graduate programs in allied health disciplines such as social work often attract working practitioners and are designed with that specific population in mind. In addition to their attributes, nontraditional graduate students also bring numerous challenges to the table, including maintaining full time jobs and families,

managing competing priorities, and dealing with other stressors that can shift their focus off of academic work (Gouge, 2009). Having worked in the field, many of these students may also believe their documentation skills are adequate and fail to recognize that different types of professional writing exist (such as academic vs. clinical documentation). Likewise, they may not fully recognize that the common elements of effective writing are essential to advanced social work practice.

Ondrusek (2012) identified twelve advanced writing competencies, including organization, mechanics, grammar, and citation of sources. Poor performance in these basic areas makes it particularly difficult to address more advanced writing skills such as process, argument, and scholarly identity. Often there is a false assumption that these skills were sufficiently mastered in undergraduate courses. As well, many students entering graduate programs are inexperienced at meeting the demands of academic writing because they came from undergraduate programs that did not sufficiently value or teach proper writing skills. Likewise, students from this background may not view writing as an essential professional practice skill, making assertions such as “I want to be a social worker, not a writer!” (Grise-Owens & Crum, 2012, p. 517).

Instructors are often hesitant to address writing deficits due to the significant additional time required to assist students in bringing skills up to the graduate level. Time consuming grading challenges can also reduce the likelihood that instructors will evaluate work negatively (Sowbel, 2012). Additionally, if instructors in graduate programs are inconsistent in their writing assessments, those who are more diligent may potentially receive lower student evaluation scores than those who are not attentive to writing skills (Grise-Owens & Crum, 2012; Alter & Adkins, 2006). This can be a disincentive to some in terms of the rigor with which they point out excessive student writing errors. The problem with grade inflation can also impact the degree to which educators are critical of student writing proficiency. These dynamics ultimately create an atmosphere that perpetuates a systemic problem of inadequate assessment of student’s writing skills.

Despite these administrative, student, and instructor-based barriers, it is essential to recognize the importance of writing to all graduate students (Alter & Adkins, 2001; Sallee, Hallee, & Tierney, 2011; Weisman & Zornado, 2012). Ondrusek (2012) summed up the evaluative importance of writing, stating, “Writing is the vehicle that most graduate programs embrace as the means for reviewing how well students are able to assimilate knowledge and integrate that knowledge into new ideas” (p. 179). More importantly, post-graduation writing is at the core of most professional level jobs. If students/practitioners are not strong writers, it will certainly have a negative impact on both them and their future clients in the workplace.

Social Work Specific Concerns and Responses

Alter and Adkins’ (2006) study indicated that between one third and one quarter of entering MSW students did not possess adequate writing skills. Advanced standing and provisionally admitted MSW students manifested a statistically significant higher deficit in writing skills. The lack of APA citation skills is also problematic. Social work graduate students appear to be underprepared and become highly stressed when asked to format their papers in the most current APA format. The thought of learning writing as an additional practice skill can often result in increased student anxiety and poor performance on writing assignments. Consequently, it may be a false assumption that incoming social work graduate students possess the writing skills necessary to be successful.

Writing is an absolutely essential professional practice skill. Several specific educational competencies linked to accreditation are mandated in writing for social work students. The Council on Social Work Education (CSWE) (2008) provides ten core competencies, and some of those outline professional obligations involving writing. These expectations include the ability to “demonstrate effective oral and written communication”; “demonstrate professional demeanor in behavior, appearance, and communication”; and “critical thinking also requires the synthesis and communication of relevant information” in Educational Policy 2.1.1 and 2.1.3 (CSWE, 2008). All of these competencies are essential to providing direct services to clients.

Additionally, social work students, instructors and practitioners have certain responsibilities to clients, colleagues, practice settings, other professionals, and the broader society which are outlined in the *NASW Code of Ethics* (2008). The primary mission of social work has four components including helping meet basic needs, empowering people who are oppressed, addressing environmental barriers, and enhancing the well-being of people. Professional writing is essential to help achieve this mission and is a cornerstone of ethical social work practice (Weismann & Zornado, 2013).

Social work students are expected to leave their programs with highly developed writing skills that demonstrate strong critical reflection and analysis (Wiener, 2012). Instructors often work toward improving graduate student writing skills by providing direction, assistance, and feedback in order to meet that goal. In

social work programs, the tasks of curriculum development, admission procedures, and providing student supports are often adjusted in an effort to support struggling writers. Despite these efforts and adjustments though, many students remain in need of additional writing instruction. Teaching a required or elective course in advanced professional writing skills is one way to address this deficit and with the increase in online course offerings, this task must often be undertaken online.

Asynchronous Online Education: Patterns and Challenges

Online education trends. Enrollment in online courses is increasing every year in the United States in the 21st Century (Carpenter, Brown, & Hickman, 2004; Robinson, & Hullinger, 2008). According to Allen and Seaman (2013), in 2013, 6.7 million students were taking at least one online course, compared to 570,000 from the previous year. These numbers are at an all-time high and are expected to increase in the immediate future. The popularity of online education is due to several benefits of this type of learning format including familiarity with technology, convenience and the increasing technological sophistication of students in higher education today.

A majority of college students today have grown up with Internet, email, and instant messaging. Emerging technologies have impacted the way students research, develop and publish their work. The option to use familiar online technologies in online classrooms can benefit students by reducing their anxiety about unfamiliar material (Griffin & Minter, 2013). According to the University of Washington (2013), online courses have several benefits for faculty and students. Instructors and students are able to work from home, making online courses convenient and flexible. For students who are struggling in a course, online courses allow students the capacity to re-watch recorded lectures, repeat exercises, and re-read peer discussion comments. They also incorporate new learning techniques and experiences that other instructional learning methods cannot. Extra free time is also a popular incentive for instructors and students in an online course. According to Gouge (2009), an online writing classroom frees student's time and allows faculty to spend more time reviewing and evaluating student work due to less time spent in face-to-face class.

Goodfellow and Lea (2005) highlighted the aspect of online instruction being replete with writing opportunities that, if framed appropriately, can encourage students to focus on writing skills development. In an online learning environment, communication takes place predominantly through writing encouraging clarity and conciseness. Rendahl (2009) cited a specific advantage of online writing class as the "opportunity for students to be immersed in writing" (p. 140) which is not something that can occur in hybrid or face-to-face formats. In fact, in traditional face-to-face interactions, there would be little opportunity for student self-expression through written communication. These benefits are useful in understanding the reasons for the increased interest in online learning from a student perspective.

Online education challenges. An online format challenges students in a number of ways ranging from increased social isolation to learning styles inconsistent with the online modality and the implicit requirement to use new or inaccessible technology (Cook, 2007; Gallagher-Lepak, Reilly, & Killian, 2009). Gallagher-Lepak et al. (2009) highlighted technology as a disadvantage with an online course. The study discovered that when computer glitches and technical issues occur, it distracts students from learning to their full potential. Particularly when students become anxious regarding malfunctioning software or internet connections, the distractions may impact learning (Cappiccie & Desrosiers, 2011). All students may not have home-based internet access, making checking email and reviewing comments more challenging. The lack of availability of technology hardware such as computers and access to internet should not be taken for granted by professors and proactively addressed in teaching online courses.

Students with English as a second language (ESL) report a unique set of challenges related to online learning including discrimination and disenfranchisement by native English speaking students with word limits on assignments making expression of ideas more challenging for learners with ESL (Goodfellow & Lea, 2005). The authors specifically noted such issues as ESL students needing extra time to complete assignments when there is often a limited window of response opportunity and struggling with the ability to lucidly convey meaning and context in writing. The fact that in some universities there is no leeway for instructors to provide accommodations for students with ESL difficulties further compounds their struggles.

Several studies both inside and outside of the social work discipline describe innovative techniques and courses to address writing deficiencies with graduate students. Interventions ranging from face-to-face graduate student writing groups (Cuthbert & Spark, 2008) to optional support services and online courses (Goodfellow, Strauss, & Puxley, 2012; Rendahl, 2009) to programmatic changes in admissions, curricular revisions, and

support options (Alter & Adkins, 2001, 2006; Grise-Owens & Crum, 2012) are included in this literature review with a focus on application to asynchronous online teaching. Best practices for teaching online graduate writing courses are drawn from evidence gathered from multiple graduate program settings. These best practices can be utilized to overcome challenges and harness the strengths inherent in the asynchronous online format for teaching graduate writing online.

Best Practices Strategies

Best practices for teaching graduate writing online can be divided into three areas: administrative, curriculum and instructional strategies.

Administrative Strategies

As government subsidies are reduced in public universities, increased costs are passed on to students if cost savings cannot be realized within the university itself. Corporate models of education lead to administrative pressures on graduate programs to reduce costs which can lead to decisions that inadvertently decrease quality (Johnson, 2015). Administrators can foster high quality online courses through evidence-informed strategies including providing adequate web-based resources and faculty support, facilitating appropriate course size limits, and developing appropriate support services for students. These strategies will help insure that faculty and students have the appropriate support for their online writing courses.

Appropriate course size limits. It is up to graduate administrators and faculty to monitor the quality of educational offerings. Primary importance must be placed on the quality of the educational program. Increased financial pressure often results in increased online class sizes, which effectively reduce brick and mortar and faculty salary costs. This financial cost saving maneuver can easily overextend faculty resources and reduce the quality of educational programming (Griffin & Minter, 2013). Students in an online graduate writing course require a higher level of individual attention and these aforementioned factors make this more difficult to achieve.

Faculty report that teaching online can result in more front end course preparation than in traditional face to face courses. Online course sites, introductory videos, and resource lists must be completed prior to the beginning of the course. If the faculty member is not familiar with the online platform used by the university, training in that platform must be completed. Once the course starts, faculty members are often expected to maintain constant contact with students through email and phone contact. There are also additional assessment responsibilities involving discussion board assignments with multiple posts and responses that must be read and commented upon. For these reasons, it is reasonable to reduce the workload of online instructors in addition to keeping the class sizes low, below 20 students per class (Griffin & Minter, 2013).

Adequate faculty support. According to Griffin and Minter (2013), faculty need adequate training in online instruction. Both technical and pedagogical support are necessary for successful online teaching. This training support should occur both before and during the online course. Appropriate topics for technical training include the institutional content management system (such as Blackboard, Moodle, Coursera), and university resources available to support both students and faculty when problems arise.

Appropriate pedagogical support includes ongoing faculty development offerings on best practices for online education, experienced faculty mentors for new or adjunct online instructors, and library resources that can support online education.

Adequate web resources for students. Stine (2004) found that many instructors tend to worry about teaching writing online because students have to learn writing while simultaneously learning the relatively advanced computer skills required to complete online writing assignments. In response, Gouge (2009) maintained that a solid online writing program should focus more on writing rather than the technology. These authors thus acknowledged the importance of focusing on the course content in an online class rather than the technology.

Appropriate topics for technical training of students could include the institutional content management system and university resources available to support students when problems arise. Adequate technical resources can include a call center for troubleshooting support when course management systems are challenging students, library tutorials and librarians available for help regarding use of the university library resources online, and online writing center assistance.

Without adequate administrative support, it is unlikely that an online writing course will succeed. Faculty and students need appropriate training and support in addition to appropriate working conditions in terms of course sizes and faculty workload expectations to make online writing courses (or any online courses) successful.

Curriculum Strategies

Once appropriate administrative supports are in place, curriculum design becomes the primary concern. The appropriate foci for a graduate level writing course class include advanced writing core competencies (Ondrusek, 2012). Exploring effective barriers to writing should be addressed within the curriculum design as well. These foci are described in detail below.

Focusing on core competencies. Ondrusek (2012) identified twelve advanced core competencies graduate writers must master in order to become strong writers. While all are considered advanced, these competencies are easily divided into basic, mid-level and highest level competencies for the basis of curriculum design. Basic competencies include mechanics/grammar, accuracy, content, and source citation; mid-level competencies include organization, argument/evidence/logic, audience/voice, and the highest level competencies include conceptualization/developing ideas/pre-writing, writer process, expression, critique, and developing scholarly identity (Ondrusek, 2012).

In designing curriculum, it would be most effective to begin with the basic competencies, move to the mid-level competencies, and then bring the highest level competencies to the forefront (APA, 2010). This would move students through a logical progression of the information they need to know to be a strong advanced level writer. Several of these competencies: conceptualization/developing ideas/pre-writing; writer process and scholarly identity formation; and critique & argument/evidence/logic will be discussed in more detail to highlight their importance.

Break down the writing process. Writing is a complex combination of skills that is best taught by breaking down the process. Ondrusek (2012) identified conceptualization/developing ideas/pre-writing as an advanced writing skill, and many others have determined teaching the writing process is important (Cone & Dover, 2012; Kinloch & Imig, 2010; Kuo, 2008; & Strachan, Murray, & Gryerson, 2004). Not only is teaching writing process important, but also continual coaching and guidance toward successful navigation of the writing process is an important consideration when thinking about assignment design and the flow of the course (Bean, 2011).

Kinloch and Imig (2010) developed an online writing workshop to interact with students at all phases of the writing process. The writing workshop modeled introductions, thesis statements, embedding quotes, and conclusions. Using a workshop format in a virtual classroom transforms writing into a structured method that does not leave students to fend for themselves. Cone and Dover (2012) developed a writing course that focused on the writing process, priorities, styles, purpose, and specifics. Their course was designed “to change nurses’ perspectives on professional writing, increase interest and enthusiasm, and reduce fear and avoidance of writing.” (p. 273). Developing skill in utilizing the writing process was an important topic in this course.

Some graduate programs conclude their course of study with a written project in the form of a thesis, which can place new demands on both students and instructors alike. Strachan et al (2004) developed a writing-based tool for thesis writing. This online tool provided instructional material, a writing space, and planning templates, with each step of the writing process included. Kuo (2008) advocated providing writing guidelines such as tips and sample paper sections to assist struggling students with the various parts of the writing process.

Sallee, Hallett, and Tierney (2011) modeled the writing process by presenting their own completed papers as well as ones that were in process to students in their courses. This allowed students to visually see real papers being broken down. Instructors who focus on breaking down the writing process have found that their students are more successful in their writing. There is no end to the variety of approaches used, however, teaching the writing process step by step is an effective approach to approaching this topic.

Incorporate self-assessment and peer review. Ondrusek (2012) identified argument/evidence/logic and critique as advanced writing core competencies. Incorporating peer review and self-assessment is a logical way to teach these skills when teaching writing online. Bean (2011) provided an excellent approach for designing writing assignments that challenge students to utilize critical thinking. The author advocated the use of short (one to two pages) argumentative essays that students rework through multiple revisions. This allows students to transfer learning from one essay to the next as increasingly complex essay topics are assigned.

Yang (2011) emphasized that it is beneficial for students to review each other's work and deliver helpful revision suggestions. Instructors who promote peer review sessions are encouraging students to collaborate and learn from each other. Coit (2004) demonstrated an overall improvement in student's quality of writing when peer reviewers were empowered to be the instructors in an online writing course. Similarly, Kuo (2008) emphasized when students provide feedback to their peers, they learn to critically analyze and revise their writing. Ultimately, peer review allows students to develop new ideas and perspectives as well as improve their own writing skills.

Peer review is an evidence-informed tool to use in an online writing course, but students need specific instruction on how to further develop their skills in reviewing another student's work. Pengitore (2005) explained that instructors should clarify their expectations to their students before beginning a peer review session. Students should focus on generalities-structure, topical sentences, and the use of quotes when reviewing another student's work. Grise-Owens and Crum (2012) advocated the use of a standard writing rubric in this process. Regardless of what factors the instructor chooses to focus upon in the peer review process, it is important to explicitly state those and offer guidance as to what an adequate writing sample looks like. The importance of peer review in an online writing course is a recurring theme in many articles that focused on online writing instruction.

Equal in importance to the ability to assess others writing is the skill of self-assessment. Weller (2005) and Weimer (2014) emphasized the importance of formative self-assessment and provide strategies for teaching this skill. Defined as the ability to evaluate one's own work and what is good and what needs improvement (Weimer, 2014), self-assessment is an important part of a writer's development. In understanding more about expected outcomes, students can determine how they can change their own writing process to help improve future writing.

Cho, Cho, and Hacker (2010) found that graduate students who were able to develop successful self-monitoring skills through self-evaluations and peer evaluations were able to improve their writing more dramatically than those who did not. This suggests it is helpful to combine the two processes of peer review and self-assessment. For example, the instructor could assign a student self-assessment of a writing assignment coupled with a peer review of the same assignment and then provide a third review utilizing a standard writing rubric (Grise-Owens & Crum, 2012). Then, all parties could review the resulting information in a small group forum online. An additional reflective essay regarding the learning outcomes of this process could also be beneficial (Weller, 2005). Assignments such as these can improve the writing skills of self-assessment, peer review, and simultaneous instructor feedback.

Explore and reduce affective barriers. Interestingly, Alter and Adkins (2001, 2006) reported that graduate students often fail to utilize no cost supplementary writing assistance offered in the form of online or face-to-face writing lab time or meetings with faculty members. When held to a high writing standard some students complain about faculty inconsistencies related to writing assessment. It is possible that these students respond with a degree of learned helplessness as they struggle to achieve good marks on writing assignments, yet are immobilized by the emotional impact of the situation.

Graduate students may not come to the writing process prepared to emotionally cope with the rigors of this task. A lack of confidence and high anxiety are commonly cited as difficulties (Ondrusek, 2012). The writing process may be lengthy with a high volume of feedback to sift through, and students may become defensive or angry as they review critiques they disagree with or do not understand (Ondrusek, 2012). Some students may also resort to taking an "adversarial stance" with faculty attempting to assist them with writing improvement (Grise-Owens & Crum, 2012, p. 520).

Reducing affective or emotional barriers to writing is possible from a curriculum standpoint. One strategy is to encourage students to support each other through peer review, online discussion forums, and forced editing practice of student work (Sallee et al., 2011). Offering multiple opportunities for peer review and group discussion of writing assignments is important because with each review and discussion, students become more adept at fielding questions or concerns about their work objectively (Cuthbert & Spark, 2008). Reflective discussion forum assignments give students opportunities to provide and receive support for writing challenges from both other students and instructors.

Developing a scholarly identity and a clear writer's process are important to include in any graduate writing course (Cone & Dover, 2012; Ondrusek, 2012; Sallee, Hallett, & Tierney, 2011). Encouraging graduate writers to find a personal writing process and style will assist them in developing a scholarly identity. As they become more comfortable in the writer's role and find writing strategies that help them complete writing projects successfully, students will feel more confident in their writing skills. Assignments such as reflective forum

discussions regarding exploration of personal writing identity and comparison and contrast papers of writer's with different writing styles will help facilitate identity formation.

Sallee, Hallett, and Tierney (2011) suggested the use of instructor role modeling is an important strategy in the development of a scholarly identity. Sharing a completed paper in various stages of the writing process is helpful because often students think writing is easy for instructors. Sharing a video lecture of instructor thoughts and struggles through the process unlock the mysteries of the writing process. It is helpful to see that these struggles are common, and that use of the writing process can result in a published (or at least completed) paper.

All of these curriculum development strategies are useful in the planning stages of the online graduate writing course. The course syllabus should reflect as many of these curriculum best practices as possible. Once the curriculum is fully developed, multiple instructional strategies are available to enhance the likelihood of student engagement.

Instructional Strategies

Best online practice teaching strategies identified in the literature include utilizing engagement strategies, clarifying expectations, providing effective instructor feedback, and effectively using web resources. These strategies are further detailed below.

Engagement strategies. The success of an online course depends greatly on the active engagement of students. Sapp and Simon (2005) suggested that failure to engage students and make them accountable in an online course often results in course withdraw. Strategies such as holding interactive chat sessions, online office hours, and video or voice messaging will encourage students to engage more fully (Sapp & Simon, 2005).

According to Grise-Owens and Crum (2012) incorporating different techniques such as revision and collection are good writing results from engagement. Brescia and Miller (2005) assigned a student every week as an online discussion leader in a web-based writing course to help increase student interaction. Poniatowski (2012) indicated that the more interactive tools added to online writing courses provide more options for students to engage because if one tool doesn't appeal to a student another might. Instructors need to consistently sustain these types of engagement in online education.

It is the student's responsibility to fully engage in online courses but instructors play a big part in it as well. According to Robinson and Hullinger (2008), it is the instructor's role to create purposeful course designs that promote interaction, participation, and communication in an online learning environment. The more strategies used to engage students in an online course, the more likely they will become and remain involved in the course.

Clarify expectations. Online education is still new in terms of supporting traditional college course work. In order to reduce barriers, instructors should address and familiarize students with their expectations. For instance, Penigore (2005) suggested instructors should review expectations before giving any assignment to their students. Saveneye et al (2001) explained that the material and documentation used to give direction to students in face-to-face courses needs to be much clearer in online course. This is indicative of the fact that instructors need to be far more prepared and organized when teaching online.

Lillis and Turner (2001) focused more on the importance of instructors being clearer with instruction and terminology when teaching academic writing to students. They emphasized that students in higher education are confused about what is required in their academic writing when instructors use phrases without explaining them. Instructors need to clarify and explain these terms to avoid students from struggling in academic writing.

Along these lines, Grise-Owens & Crum (2012) provided a standard writing rubric to students to clarify terms and expectations of writing. This rubric included five areas of assessment: completion, organization, development, clarity, and credibility, and each area has specific points defining what full credit for that area includes. Grise-Owens and Crum (2012) found that using a standard writing rubric improved their social work students writing by providing faculty with a core evaluation instrument that facilitates clear instruction. It also provided students with consistent language when writing rough drafts, completing peer reviews, and reviewing faculty feedback.

Online courses that incorporate these strategies will help students stay on track throughout the entire online course. Addressing these issues in the beginning will reduce barriers and allow students to better enjoy learning in an online environment.

Effective instructor feedback. There is a wealth of literature concerned with the importance of teacher feedback in online writing courses. Pengitore (2005) emphasized the importance of providing meaningful feedback to students that is timely, specific, and constructive. Failing to offer feedback to students in an online class is similar to ignoring a student's raised hand in a classroom. Alvarez, Espasa, and Guasch (2012) explained that teacher feedback should focus less on providing correction and more on providing suggestions or questions that challenge students. Incorporating suggestions and questions is also a great way to familiarize students on the expectations of their instructors.

Instructors need to be aware that students can also take their feedback personally, so certain parameters need to be observed when following it. Without nonverbal cues such as voice tone and facial expressions, students can evaluate negative feedback the wrong way. For example, Ondrusek (2012) explained that just by highlighting areas that need improvement in student's writing, it could challenge a student's confidence and sense of self. Especially in a developing writers, this could be detrimental to learning. Instructors need to explain their reasoning behind any corrective feedback in addition to providing positive feedback on what the student is doing correctly.

Along with Pengitore's (2005) perception of the importance of student feedback, Sapp and Simon (2005) acknowledge that prompt feedback can help prevent students from feeling isolated and detached from the online course they are taking. Isolation is a major concern for students and instructors but with prompt and detailed feedback it can decrease the chance for isolation to occur. Efficiency in feedback among students and instructors could end up being the primary benefit of creating an online graduate writing course.

Effective use of web resources. There are many web-based tools and resources instructors can use to teach different kinds of writing online. It is important to understand that online tools can be used ineffectively in ways that are distracting and inhibiting, or they can be used to create new spaces and opportunities for student learning (Gouge, 2009). For example, it is not enough to simply place a link to the web resource on the course site; too much information can overwhelm students on information overload already. Maidment (2005) suggested that instructors should direct students to helpful resources and plan activities to introduce new tools to students. If the tools are on a course site without explanation as to the benefits or how to use them, students will not utilize these resources as often or effectively.

Emerging technologies have impacted the way students research, develop and publish their works. According to Griffin and Minter (2013), real-time collaboration software like Google Docs allows students to alter their work at the exact same moment as another. They cite the everyday use of technology such as posting on each other's Facebook walls, commenting on blogs, and tweeting out news as indicative of the increased opportunities available for writing purposes. Using this sort of interactive, collaborative process in online classrooms can be beneficial as students feel more socially connected to others. Instructors should insure the online tools they plan to use are well designed, easy to navigate, convenient, reliable, accurate, and comprehensive before incorporating into their online classroom (Griffin & Minter, 2013)

Many instructors are incorporating tutorials in their online classrooms. Roberts and Goss (2009) used a writing tutorial to improve their students writing abilities. The writing tutorial provided students with information on grammar, spelling, proper organization, flow, and APA style. Krause (2006) also presented an online writing resource to assist students with the fundamental of writing. The online writing resource provided course specific information, writing tutorials, and specific models of student writing. In addition, Englert, Zhao, Dunsmore, Collings, and Wolbers (2007) incorporated organizational tools such as graphic organizers and mapping tools, as well as assistive technologies to support writing performance. The organizational tools allowed students to map their ideas during the planning phase and then transform their ideas in the writing phase. The tools also highlighted the locations where appropriate writing procedures were defined on the web.

It is not necessary to create original resources as there are many web-based resources available for use in online writing courses. In particular, many online writing labs are maintained for student assistance. For faculty without a university online writing lab, the Purdue OWL is one excellent example of an online writing lab that is publicly available for all instructors to use (<https://owl.english.purdue.edu/owl/>). These sorts of no-cost open access websites provide students with a reference point when they are struggling with their writing. As an added benefit, these resources are available to the student following the course.

Social Work and Online Learning.

Social work curricula can be challenging to teach with any instructional delivery method. Ayala (2008) acknowledged that social work missions and values are a key component in social work education. In order to

teach social work education online, instructors would have to develop new models of teaching practice, while still promoting social works core mission and values.

Social work has been slow to adopt online education courses due the importance of human interaction in social work practice. However, with the inevitable shift to more curricula moving online, the profession must find ways to adapt traditionally face-to-face classes to an online format. Levin, Whitsett, and Wood (2013) conducted a study describing the development of a graduate social work online classroom. The findings from the study indicated that it is possible to successfully teach practice in an online environment.

It is crucial for social work education to meet the demanding needs of the ever-changing student population who want access to online courses. According to Ayala (2008), in the last decade social work education has advanced significantly with online education. Social work courses are continually being developed allowing social work students the opportunity to take classes online.

Conclusion

Graduate programs expect students to know how to write before they enter graduate school but it is uncommon to see a graduate course with a predominant focus on writing (Sallee, Hallett, & Tierney, 2011). Graduate students are often penalized for their lack of advanced writing skill through unclear grading mechanisms without being provided supplemental help that would improve their writing. Writing deficiencies hinder advancement toward fulfilling degree requirements and ultimately present a major obstacle to graduate school success.

Even more concerning, after graduation poor professional writing can lead to negative consequences for clients in the workplace. Clients may experience harm as a result of improper documentation of service provision, court requirements, or treatment concerns. Poor written communication can also lead to misinterpretation in interdisciplinary collaborations resulting in inappropriate decisions being made about client care. Finally, social workers have an ethical obligation to write well (NASW, 2008), and it is an established core competency of written communication in social work practice (CSWE, 2008).

For these reasons, the significance of having advanced writing skill instruction available in a social work graduate program cannot be understated. However, these skills do not develop automatically. An online writing course is one possible solution, and it is important that this course take place within a more systemic intervention including administrative and programmatic strategies to alleviate the barriers to writing well. This critical review summarizes graduate student writing challenges and offers empirically supported best practice strategies for online writing instruction.

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DISTANCE EDUCATION: FROM DEEP DISAPPOINTMENT TO NEW OPTIMISM

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Abstract: The demand for higher education continues to rise. The rapid increase among the numbers of undergraduate and graduate enrollment indicates that a university diploma is accepted as a good value and a key to better life even at the face of the remorseless rise in the cost of getting it. On the other hand, higher education is accepted as an essential requirement to cope with the necessities of citizenship in the 21st century. The knowledge requirements are more pressing as the world gets more complicated and economies are transforming to knowledge economies. Furthermore, it also is in the interests of the societies and nations to invest in their people because returns to them are enormous. So the economy needs it, people needs it, societies and governments needs it. There is demand from all sides. But unfortunately this demand is not fulfilled. Approximately 40% of total high school graduates do not make it to universities for different reasons. Within this paradigm, introduction of web based distance education opportunities raised great hopes. Indeed, an appropriately constructed system could make miracles by overcoming physical obstructions as well as financial hardships. But the retention rates among the pioneering US Universities distance learning programs created a huge disappointment. Underneath this failure lies the fact that learning is a “social experience”. Overlooking this phenomenon is a sure remedy for failure. This paper focuses on this aspect of distance learning, and investigates hybrid approaches, flip-class applications and newest web systems incorporated to existing online applications.

Key words: Education, distance, social, online

Introduction

The demand for higher education continues to rise despite the fact that the cost of higher education is increasing faster than inflation (Barber et al., 2013). National Center for Education statistics (NCES, 2014) points an increase of more than 40% at the prices for undergraduate tuition, room and board after adjustment for inflation, in a decade; from 2000 to 2010, while the percentage of students admitted to universities raised from 40% to 60% of the total high school graduates among OECD countries (OECD, 2012). The rapid increase among the numbers of undergraduate and graduate enrollment indicates that a university diploma is accepted as a good value and a key to better life even at the face of the remorseless rise in the cost of getting it. By all manner of means, higher levels of education designate more income over the lifetime and possibly better life. Graduation signals a profoundly different life with much better prospects. Various researches revealed that “*those with undergraduate and postgraduate degrees out-earn their un-credentialed peers*” (Barber et al., 2013). A recent study conducted by Lindley & Machin (2013) from Sutton Trust, found that, “*on average, a master’s degree holder in the UK earned £5,500 more per year than someone with a bachelor’s degree, and in the US the premium is even higher, at \$16,500 per year*”.

On the other hand, higher education is accepted as an essential requirement to cope with the necessities of citizenship in the 21st century (Smith, 2010). The need for a university education is more material nowadays than ever. The world is far more arduous ever before. The knowledge requirements are more pressing. As the world gets more complicated, people needed to be more educated. A university education seems critical in today’s society. Because the economies are transforming to knowledge economies, to acquire a job, to function correctively, even to make it as adult, one will need higher education. Not only in the sense of reaching higher employment opportunities, but also for entrepreneurship. Even the most rudimentary tasks necessitate considerable accumulation of knowledge and deeper understanding about the workings of the business life.

Furthermore, it also is in the interests of the societies and nations to invest in their people because returns to them are enormous (Barber et al., 2013). Contribution of the educated to the society materialize in the

taxes paid, jobs created, and even in the mature and civilized societal relationships and less crime rates. Conversely the social and personal costs of quashing the energies of youth are tremendous. So are the economic costs (Mourshed et al., 2013). The cost to the economy of not being able to re-engage young people into the labor market calculated as a staggering €153 billion in 2011 annually by The European Foundation for the Improvement of Living and Working Conditions' 2012 report (Mascherini et al., 2012). If young people cannot land on decent jobs and the sense of security and pride that comes with them, it will be no surprise to encounter dissent, anger or even violence from them (Mourshed et al., 2013). Brown & Adler (2008) cites [Sir John] Daniel (1996), who warned that *"more than one-third of the world's population is under 20, amounting to more than 35 million people qualified to enter a university who have no place to go"*. To be able to furnish the opportunity of a university education to every eager teenager fresh out of high school should be a viable future.

Hence, the need for "a better educated generation", in the deepest and broadest meaning of that word, is crucial (Barber et al., 2013). But how can education be made more accessible to the young despite the shortcomings on the supply side and hindrances of costs?

Online education

Internet and connectedness together with globalization made profound transformations everywhere. From media to communication to banking and finance, it disrupted the mediums of businesses, alternated markets and changed every business it's touched. Although higher education seemed to resist those changes, a hurricane is at sight which will cause devastation to structures and operations that require reorientation of purpose and rebuilding (Senoir & Swailes, 2010). Seemingly unshakable posture of the universities are changing, or at the threshold of change. Indeed, entirely new models of universities are emerging to respond and profit from the opportunities posed by globalization and internet. In fact it is imperative that there needs to be a profound transformation and re-structuring in higher education system.

Concept of the traditional university, conventional lecturing, and even the understanding of why's how's of research are under pressure. University professors no longer have the over information and knowledge they once had. Neither the libraries are the most important resource for them. After all, anyone with an Internet connection can find multi-gigabytes of data, and multiple interpretations of them from multitude of perspectives with a few mouse clicks. The sheer quantity of information has grown exponentially, and it is feely available. This so called *'ubiquity of information and the near-zero cost of storing and transmitting it'* (Barber at al., 2013) contributed to allow the emergence of multiple forms of non-university and non-public providers operating in industries other than the traditionally-conceived education industry (Gallagher, 2013) to conduct research and offer degrees.

In this landscape it is considerably arduous to convince the so called generation Y to stick to accustomed educational patterns. Today's teenagers, being almost always connected, get any information instantaneously, if they have an interest in it. Multitasking seems so natural to them. Because they're so demand-oriented, it is quite hard for them to fit classic education system sitting in a classroom for hours, trying to concentrate, acquire and understand whatever is being forwarded to them (Smith, 2010). Therefore the pressures of disparity are mounting from all of the hubs. Traditional university model is ripe for innovation and university leaders need to understand the opportunities open to them to exploit and profit while creating value for the students.

The pressure to change and the allure of quick and easy money was there even from the very beginning. Quite a bunch of universities tried it. But the early results resurfaced considerable disappointment. Carrying wide range of educational materials to web and labeling them as "online programs" were numerous. Recording the lecture of a renowned professor and make it available on line looked like a sound business. If 50 people watch it good, 5000 better, and why not 5 million. There happened to be a tendency to turn online education to a cash cow, by putting as much students as possible in a virtual classroom with one instructor online. That's a classic "virtual model". By just re-organizing the educational stuff, uploading them to web and expecting to see students flocking is a huge misconception. There's a lot more to online learning. Creating conditions to engage the "disengaged" youth segment in such dynamic yet bounded contexts requires different kinds of competence and understanding (Mourshed et al., 2013). Without actually being in a classroom or even in a campus, the daily proceedings of life cover most of the available attention and motivation to focus becomes extremely difficult. Most of online students tend to lose interest promptly. That is why retention levels are extremely high and graduation rates are below a disappointing 14 percent (Laseter, 2012).

The social dimension of classic education

The vast amount of information and knowledge available online in internet greatly enhanced the accessibility of students without guidance. Yet, determining the relevance of them, creation of new understanding and capabilities based on them and elevating the students from training to education resides at the center of the mission of universities (Laseter, 2012). Universities rely on a complex blend of solid accumulated knowledge base, tested and proven lecturing skills, disposition and values embedded within the institution to improve student learning by creating and employing 'artifacts', such as policies, programs, and procedures where all of them are critical to creating the right environment to improve learning for students (Halverson, 2004). Indeed, despite we have all the information in internet, we don't just go and learn to be engineers. There is another crucial kind of ingredient to learning which is being a faculty member.

One of the most important advantage of attending to a campus-based university is the campus environment: casual discussions with your professors; intense interaction with other students, gaining rich feedback and opportunity to discuss, compare and choose right classes needed to be taking in terms of graduating (Smith, 2010). Pedagogy professionals insist that on any account higher education is an enduring value based on not collecting knowledge but gaining the capacity for intellectual inquiry. And this kind of deeper level of understanding can naturally and efficiently leveraged by interactions within the group. For students, almost always, learning by discussion and debating with peers seems more concrete than being a passive recipient of bundled knowledge chunks.

Thus, the vital part of a university education is the involvement and participation gained by meeting fellow students in vibrant academic surroundings, the opportunity to socialize with like-minded peers in an educational setting, pursuing stimulating activities (Laseter, 2012) to lead an organization, play sport, share thoughts and ideas, and of course to make friends, being together in 'cool' places with good coffee, wine and music, interacting at the library as well as at the accommodation facilities and even participating the nightlife (Barber et al., 2013).

This apprehension shifts the focus of attention from 'what' to 'how', from 'content' to 'context'. Indeed focusing to the learning activities together with the peers who shares same environment, same worries and concerns helps to explain the effectiveness of study groups. Steady interaction, simultaneous feedback in an emotion intense environment greatly enhances understandings, to clarify areas of uncertainty or confusion and improve the re-construction of the knowledge they supposed to learn. Moreover, "one of the quickest ways to learn something new, and to practice it, is to teach others how to do it" says Gallo (2012). This practice is at its best in study groups where students take on the role of teacher and student simultaneously while studying together (Brown & Adler, 2008).

Does these mean that on-line education is inherently crippled and has no real value for higher education? Of course not. The issue is to create an on-line learning perspective integrated with the necessary social element.

A new online ecosystem which contain the social element

Some of the universities went on-line by recording lectures and expect students to review them at their leisure, some of them went further with experimenting with flipped classrooms, with the professors acting as facilitators and activators rather than lecturers. All these so called 'blended approaches' coupling the virtual and the real as a continuum rather than a contrast, aim to physically touching the students one way or another to ensure real-world interaction. Some universities are organizing immersive summer experiencing camps, while others scheduling monthly gatherings under the supervision of the professors for real interaction in the remote campuses established through partnership with local institutions. Providing 'the experience' elsewhere as meet-ups and conventions of learning communities are designed.

But can the social element be provided on-line also?

University of Phoenix is experimenting what is called asynchronous on-line learning (Smith, 2010). Professor leave all the stuff related to the subject, including recorded lecture if s/he feels necessary, together with PPT presentations, documents, web source addresses whatsoever. Students are expected to go over them and at some point, post responses or thoughts on an online bulletin board and communicate with the classmates, objecting the ideas of others and/or presenting new approaches. They participate in the discussion the entire week. Keeping the discussion in mind students may have 'a-ha' moments anytime anywhere, and connect,

challenge and be challenged with a lot time to re-evaluate and re-argue. It's not like you're segmented out two hours today to go to school. It's kind of on your mind the entire day. After the discussions mature, professor assigns a work to each student completed and forwarded individually. Students are not requested to be present on the computer watching a lecture at a given hour. Whenever they have their downtime, they go online, read, reflect, and whenever they feel ripe on the subject they comment and answer. The group is small, interactive and collaborative. It is social and discussion based, loaded with a lot of critical thinking, research and debate. It's not lecture-based. Students do not have the chance loaf around and evade contribution, they have to participate. Contribution is mandatory

Indeed, in a report issued at 2010, US Department of Education indicates that *"the quality of teaching and learning online can be better than face-to-face, not least because all the interactions are explicit and can be analyzed and improved upon, rather than taking place behind lecture room doors"* (USDE, 2010). Consequently students are working a lot harder in an online class than in a traditional class, not just because contribution is mandatory, but also because they engage in tough discussion and debate with the classmates. They don't bounded with the theory only, but also how those theories apply to their life and what they're doing at work or what they're doing in their daily practices.

Brown & Adler (2008) cites the comments of David Wiley at Utah State University about an online course as:

"The writing students did in the first few weeks was interesting but average. In the fourth week, however, I posted a list of links to all the student blogs and mentioned the list on my own blog. I also encouraged the students to start reading one another's writing. The difference in the writing that next week was startling. Each student wrote significantly more than they had previously. Each piece was more thoughtful. Students commented on each other's writing and interlinked their pieces to show related or contradicting thoughts" (Brown & Adler, 2008)

When that happens, and you get that kind of engagement, the interest level goes up, and the retention levels improve.

There are other very successful examples in which technology drastically transformed the conventional understanding of education by leveraging the potential of *"social learning that can better serve the needs of twenty-first century students"* (Brown & Adler, 2008) such as; Terra Incognita Project (University of Southern Queensland, 2014), which has built a classroom in Second Life, the online virtual world that has attracted millions of users, CyberOne: Law in the Court of Public Opinion (Harvard Law School and Harvard Extension School, 2014) course, and, Bugscope Project (Beckman Institute for Advanced Science and Technology at the University of Illinois, 2014) which gives students access to a scanning electron microscope located at the university.

These examples indicate the emergence of a profoundly new form of on-line education approach which is much different than simply mimicking the classical teaching methods through internet. They offer social learning platforms where groups, even "communities of learners" establish, who interact, debate and actively co-create knowledge. Being online creates much wider groups of students in which they can and join niche communities where they can benefit from the opportunities for productive inquiry, peer-based learning and distributed cognitive apprenticeship (Brown & Adler, 2008).

Conclusion

Historically, a university diploma has acted as a proxy for qualification (Mourshed et al., 2013), and having a degree implied the possession of basic capabilities for conducting the relevant task necessities satisfactorily (Wong, 2012). However, this firm belief seems to be in peril. In the rapidly changing environment and unprecedented complexity the institutions of higher education fail to meet the needs of employers. While a diploma or degree is still a highly prized asset, ability to build on foundational knowledge and adapt is evidently not granted. The compatibility between the demands of the sophisticated global labor market and yield of university education seem to break off. A survey conducted by McKinsey (Barton, 2012) revealed that "some 40% of employers believed that they struggle to fill entry-level jobs because the candidates have inadequate skills while 70% of them blamed inadequate training for the shortfall in skilled workers". A recent (November 2012) poll for Policy Exchange (Burns, 2012) in the UK found almost half (47%) of the contributors across the UK said "there was too much focus on academic subjects at school and not enough practical, job-related training for teenagers" and only 18% agreed the current education received in the universities with the right balance between academic and technical subjects. These disclosures reflected on the rising questions about the value of higher education. According to Karin Fisher (2013) "Boeing Company in 2008 began to rank colleges based on

how well their graduates perform within the corporation; it plans to conduct the same evaluation again this year". Google has a similar intention; instead of recruiting people with the highest scores from the best colleges, it now hires people who can solve problems and work together. Increasingly the credentials that schools and colleges give out are questioned (Hodges, 2014)

To add to the question, there exist a belief that an online degree can't match an on-campus degree in quality (Smith, 2010). Conducting a literature review about the employer perceptions of online degrees, Columbaro & Monaghan (2009) find that traditional degrees are superior to online degrees in the hiring process (eg: Adams & DeFleur, 2006). There is also strong evidence in favor of the hypothesis that the independent schools inflate grades (Wikström & Wikström, 2005) which further deteriorates the problems of acceptance of online degrees. These perceptions propagate the problem of assuring employers and the wider public about the quality of the degree from an online university. This is a profound matter to be dealt with. In the final analysis universities are relying on reputation. If their degrees don't produce real results, and if they fail to convince employers about the competencies of their graduates, then employers won't hire them. Their future is the ability to transform a student into something that's more valuable for their employers, and to be able to prove it in practice. Ultimately, universities are relying on reputation.

Ironically, on line learning in these respects contains profound advantages. It has wide variety of much different tools available now. Availability of most advanced simulations and games, expeditious accessibility to most relevant, most up to date and best content from a vast resource base, and unlimited capacity to provide mentoring can make a very strong argument that this is a superior way to do it.

And also there is the cost factor. In fact, cost is the top barrier for enrollment in higher education. In a recent survey conducted by McKinsey & Company (Mourshed et al., 2013) 31 percent of high-school graduates indicating they did not continue their education because it was too expensive. Contrariwise, costs of getting a degree is increasing perpetually as mentioned before. Customarily, classical indicators of quality for an educational institution like low student: teacher ratio, vast research capacity and incentives to ensure it place a heavy burden on the administrators to rise the tuition fees. Here again online education might offer an effective and efficient way out from this straightened contingency. The average instructional costs of a traditional campus based university is about 70 to 75 percent of tuition (Hansen & Weisbrod, 1970). In online this rate dramatically drops down to 15 percent. The difference gives the administration a lot of room to lower tuition dramatically and still provide more student services and better online tools. Insisting on small groups, interactive and collaborative, promoting discussion based critical thinking, and especially insisting on social dimension might come out as a sure remedy for success. Online interaction together with online learning under the supervision and mentorship of the academics, will grow students to the level of synthesis capacity. Indeed, faced with an incredibly abundant amount of information, searching, selecting, re-grouping and especially synthesizing the relevant information gained paramount importance. In the era of internet, where students are always connected, knowledge can be created collaboratively with outstanding quality and with almost no cost. And here both technology and the faculty will make the difference. Every professor is a program designer, is a curriculum designer, and is a syllabus designer (Smith, 2010). Developing and promoting them, giving them the tools to be practitioners of online teaching, will make them great new generation of teachers who are comfortable with internet, and online interaction. Their success rapidly effect and disseminate to the students and that kind of reputation gets out very, very quickly.

Higher education is heading for deep and radical disruption (Christenses & Eyring, 2011). What seemed unbreakable in the past is shattering in pieces. "The models of higher education that marched triumphantly across the globe in the second half of the 20th century are broken" (Barber at al., 2013). But the new prospects seems brighter and more promising. If all the stakeholders in the system, starting from academia to governments and to students, recognize the opportunity, seize the initiative and act ambitiously, creation of better societies is a viable future.

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EFFECTS OF WEB READING, ONLINE ANIMATION MODELS, ONLINE FLASH MODELS, AND ONLINE YOUTUBE LEARNING IN DIGESTIVE SYSTEM

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Abstract: In this virtual learning era, the teachers are directly applying the web reading, online animation models, online flash models, and online YouTube learning in teaching of science. The subjects (n=52) of an Indian elementary schools were randomly assigned to traditional treatment (n=10), online web reading (n=12), online animation (10), online flash model (n=11) and online YouTube learning (n=9) in digestive system. Pre intervention and post intervention data collected and analyzed by t test, ANOVA and Scheff Multiple Comparison techniques. It is resulted that web reading, online animation models, online flash models, and online YouTube learning has significant effect over traditional approach. This inductive research work could be applied for specific observation for broader generalization.

Key words: Digestive systems; online animation models; Online flash models; Online YouTube learning and Web reading

Introduction

Now a day, scientific methods of teaching are designing with collaborative learning style which encouraging investigation, and gathering of information. Besides these, explaining, interpreting, and hypothesizing are the common strategies to understand the concept, principal and theories of science. It's no doubt *students are clarifying their doubt or misunderstanding through these approaches, but still, why students' have no increasing rate of critical thinking, science curiosity and investigating ideas. That is why, teachers are applying innovative instructional modules to teach science.* Most of the approaches are student centred, while teachers are passive and students are active. Nevertheless, the question is in front of the world of education, whether virtual learning environment motivate the learners and affect directly the students' critical thinking in science or not. *If yes, what are these models, and how these models are effective over traditional methods?* In few decade back, traditional teacher-centred approaches was effective, while most noble laureates, scientists have completed their studies, starting from primary education level to post graduation levels. However, question in debate now, why we recently emphasizing on current models. To find the answer of this question, author tried to apply the web reading, online animation models, online flash models and online YouTube learning model in science teaching for its long term and broad generalization. Learning is an active process that requires previous knowledge, intelligent and creativity. In fact, learners have to learn the new knowledge by collecting, analyzing, sorting, and constructing the materials on their semantic behaviour. They might be able to acquire new ideas, himself/herself or from any sources for long-term retention. That is why, most effective teaching methods are designing only to stimulate thinking or to replace boring with the exciting activities. However, authors are emphasizing the truthfulness, flexibility, usability and applicability clearness about the issues. Similarly, sequencing relevant information, focuses on inquiry, thinking creatively are the methods in recent days. If we think critically about our own study, we can always read, write with an active mind, where our reading, writing will not be followed by an external teaching method. Web reading, online animation models, online flash models and online YouTube learning model prepared to realize the existence of knowledge and knowledge structure.

Web reading, online animation models, online flash models and online YouTube science learning

The concept in the form of hypertext content in the internet one can search by the search engines through electronic gadgets. The hyperlinks help to search other contents, which the reader can promptly get to, or where content can be uncovered logically at various levels. The hypertext pages are interconnected by hyperlinks, regularly actuated by a mouse click, key press grouping or by touching the screen. Separated from content, hypertext used to depict tables, pictures and other presentational substance structures with hyperlinks. Hypertext is the fundamental idea characterizing the structure of the World Wide Web, with pages regularly written in the Hypertext Mark up Language (HTML). It empowers a simple to-utilize and adaptable association and offering of

data over the Internet. Animation is the process of creating motion and shape change of a concept picture by means of the rapid display of a sequence of static images that differ from each other. Several studies have demonstrated positive impact of animations on understanding abstract processes. In general educational terms, animations can be viewed as a technique of visualization. Studies from numerous nations have exhibited positive impacts, which the utilization of diverse and creative philosophies and visualization advances may have to understudies' understanding of focal logical ideas (Wu & Shah, 2004; Kozma & Russel, 2005). Movements as moving showed materials are utilized all the more frequently at schools to delineate element changes over the long run and area, and represent phenomena or ideas that may be hard to picture (Cook, & Levinson, 2009). Flash Video document use to convey feature over the Internet utilizing Adobe Flash Player form and fresher. Flash Video substance inserted inside SWF documents. There are two diverse feature record forms known as Flash Video (e.g. FLV and F4V). The sound and feature information inside FLV records are encoded in the same way as they are inside SWF documents. Youtube is a feature-imparting site headquartered in San Bruno, California. People have transferred the majority of the substance on Youtube; however, media enterprises including CBS and BBC associations offer some of their material through YouTube, as a feature of the Youtube organization program. Six years the researcher applied different teaching strategies in primary schools and has faced so many difficulties of making the desired changes among students and other related problems due to time constraints, tensions in classroom realities. He realized the limitations of existing models that have shown in the above suggestive questions. That is why, the researcher emphasized the recent idea of web reading, online animation models, online flash models and online YouTube placed for further investigation in front of the world of education. Web based learning method has a significant effect on students' scientific process skills (Bayrak & Bayram 2003). Web-based learning applications influenced the K-12 students learning, and it changed the students and teachers' perception about the Web applications. It has intermediate effect via students and teachers' perception was found between the quality of Web-based applications and student learning (Liu, 2007). Web-learning environments have made learning much more convenient by stretching the spatial and temporal barriers. The study assessed the relative effectiveness of two different types of Web-learning environments (e.g. Distributed Passive Learning (DPL) Vs. Distributed Interactive Learning (DIL) environments) and resulted that the DIL environment is superior to the DPL environment in terms of both the learning process and the learning outcome (Khalifa and Lam, 2002). Widespread use of the Web and other Internet technologies in postsecondary education has exploded in the last 15 years. Effect of Web-based learning technology on students' engagement and self-reported learning outcomes in face-to-face and online learning environments resulted that a general positive relationship between the use the learning technology and student engagement and learning outcomes (Chen, Lambert Guidry, 2010). Similarly, Jang, Hwang, Park, Kim, Kim (2005) examined the effects of a Web-based teaching method (versus a traditional lecture method) on undergraduate nursing students' learning of electrocardiography (ECG). Knowledge about ECG among students in the Web-based group was significantly lower than that of students in the control group ($p < .01$). Conversely, the ability to interpret ECG recordings was significantly higher among students in the Web-based group ($p < .05$). Rosen (2009) found the significant impact of animation-based on-line learning environment on transfer of knowledge and on learning motivation. Ainsworth (2008) found that innovations that educational technology has made available is new forms of representations, such as animation, multimedia, and virtual reality impacted the processes and outcomes of learning results. Aksoy (2012) determined the effect of animation technique on academic achievement of students in the "Human and Environment" unit lectured as part of the Science and Technology course of the seventh grade in primary education. It results that animation technique was more effective than traditional teaching methods in terms of enhancing students' achievement. Cayari (2011) suggested how YouTube has affected music consumption, creation, and sharing. Here, researcher the observed original songs, covers, collaborations, documentaries, self-interview, video blogs (vlogs), and live performances through YouTube.

Significance of the study

The current method of teaching natural science in elementary schools is didactic and does not engage pupil's actively. How can we guess what little children know the inner part of their bodies? How it is possible to the elementary school students? It is required to know where the food, water, and air enter and where it goes out. After intervention, children could recognize the specific organs in their own bodies from the diagram and linked with the intake of food and air (Garcia *et al* 2011). Teaching elementary school students about the digestive system is a challenging task. In this context, to understand the concept of digestion, students should learn self-using web, online animation models, online flash models and online YouTube. They should feel the mechanical breakdown of food, enzymatic activity of pepsin and amylase, antibacterial activity of hydrochloric acid, and importance of the villi for absorption through online animation (Sorgo *et al* 2008). Most of the researches show

that the virtual-learning environment helped most to the learners to understand science concepts. However, pupils' questioning in Lithuania, Germany, Romania, Malta and Czech showed that most of the respondents prefer real learning environment or combine real and virtual environments while learning natural sciences (Vilkoniene, 2009). Learning as an active process in which learners become aware about to find the conceptual relations for conceptual refinement has been called conceptual change (Jena, 2011). Here, classroom learning is not sufficient for the learners rather direct observation, web reading, online animation models, online flash models and online YouTube learning necessary for them, and it should not be compulsory all students.

Research questions

Is it possible to learn science through web reading, online animation models, online flash models and online YouTube? If yes, how modern methods are effective among students to clarify the misconceptions. Is there any effect of web reading, online animation models, online flash models and online YouTube model on the achievement of digestive system? Do the web reading, online animation model, online flash model and online YouTube models effective over the control group's pre and posttest score of digestive system?

Objectives

1. To study the effects of web reading, online animation models, online flash models and online YouTube learning over traditional learning.
2. To study the relative effects of web reading, online animation models, online flash models and online YouTube learning over traditional learning.
3. To study the best effective method among the web reading, online animation models, online flash models and online YouTube learning over traditional learning.

Hypotheses

1. There exists significant difference in the pretest and posttest of web reading, online animation models, online flash models and online YouTube learning and traditional learning.
2. There exists significant difference in the overall pretest and posttest of web reading, online animation models, online flash models and online YouTube learning and traditional learning.
3. There exists a significant effective method among the web reading, online animation models, online flash models and online YouTube learning over traditional learning.

Methodology

Participants

Sixty elementary students, aged between 12 and 13 years attended a school in an urban area, were the participants. Section A of General science class was randomly assigned to an experimental group (n = 42) while Section B assigned as the control group (n = 10). However, the experimental group was assigned for self-web reading, online animation models, online flash models and online YouTube on science learning taught through animation cum discussion instruction, the control group was used the traditional instruction.

Design of the study

This study was a *Non-Equivalent Pretest-Posttest Quasi Experimental Design* assessed the effect of independent variables (*i.e.* web reading, online animation models, online flash models, and online YouTube learning) on dependent variables (*i.e.* learning performance). To minimizing the effect of *extraneous variables*, the researcher used *ANOVA and Scheff Multiple Comparison* and random sampling techniques. The findings of the study were generalized upon the whole population. First, Digestive system, misconception test was administered to the control and experimental group students to identifying their degree of misconceptions in Digestive system. However, these concepts of Digestive system, students were studied in the last semester and it was the right time to assess the students' misconception levels. The control group students were taught through traditional approach and experimental group exposed to web reading, online animation models, online flash models, and online YouTube learning of digestive system materials. However, the process of viewing the web reading, online animation models, online flash models, and online YouTube learning of digestive system and graphic was under the supervision of the researcher. The virtual experimental intervention like web reading, online animation models, online flash models, and online YouTube learning was assigned to the experimental group and traditional lecture to control group. After the end of the intervention, a posttest was administered to both the groups of students. To observe the effects of web reading, online animation models, online flash models, and online YouTube learning of digestive system treatment; t-test, ANOVA & Scheffe multiple comparisons was used (*see* Design of the study in Box-1).

Box-1 Design of the study

Sl. No.	Group	n	Pretest/ Misconception test	Treatment	Post test
1	Experimental Group(42)	12	T ¹	web reading model	T ²
		10	T ¹	online animation model	T ²
		11	T ¹	online flash model	T ²
		9	T ¹	online YouTube learning	T ²
2	Control Group(n=10)	10	T ¹	Traditional	T ²

*Questionnaires**Digestive System Concept Test (DSCT)*

In order to assess students' understanding of Digestive system concepts, a multiple-choice test was developed by following all the standardized criteria. A 15 mark multiple-choice items having a correct response, two wrong responses and a strong distractor framed for each item followed by measuring the correction of guessing, item difficulty, and item discrimination power. The reliability (Split-half .78 & Cronbach α .75) and validity (Content Validity Ratio .67) of the test was fixed during the standardization procedure.

Procedure of data collection

From the beginning of March, first, week of 2014, the author randomly selected 50 elementary school students from the population. The researcher advised and facilitated the participants to continue three-month self-learning through different virtual models to find out the result for the generalization. Mostly, web reading, animation models, flash models and YouTube like four packets of online learning materials were used to learn digestive organs' identification, structure and function. The concept like the digestive system; the buccal cavity; the gastrointestinal system; the intestines; the liver, gall bladder, and pancreas, and the absorption of nutrients were the experimental group students learn through web reading, animation models, flash models and YouTube. Earlier, these web reading, animation models, flash models and YouTube model of digestive system was familiarized with the student. That is why, experimental class was exposed to virtual learning environment ([see Appendix I](#)). Before virtual learning, a pre-test; and after learning, the post-test was administered among the students to know early performance. Experimental group students self studied the digestive system includes the buccal cavity; the gastrointestinal system; the intestines; the liver, gall bladder, and pancreas; the digestion of food, and the absorption of nutrients through web reading, online animation models, online flash models and online YouTube using internet different websites. Activity sheet was used among the students to do the activities ([see Appendix II](#)) while the control group was used the traditional instruction.

1.8.0 Analysis and results

Hypothesis 1 There exists significant difference in between the pretest and posttest of web reading, online animation models, online flash models and online YouTube learning, and traditional learning.

Table 1.1 Mean and t test of learning through web reading, online animation models, online flash models and online YouTube learning over traditional methods of teaching.

	N	Mean	df	t	P
Traditional Teaching					
pre-test	10	6.10±1.197	9	7.359	.00
post-test	10	9.40±.699			
Web Reading					
pre-test	12	8.75±.965	11	7.176	.00
post-test	12	12.33±1.155			
Online Animation					
pre-test	10	8.30±1.05	9	10.864	.00
post-test	10	12.60±9.843			
Online Flash Model					
pre-test	11	8.82±.603	10	11.353	.00
post-test	11	12.36±1.027			
Online Youtube					
pre-test	9	8.56±.527	8	11.068	.00
post-test	9	12.44±1.014			

Table-1.1 showed the descriptive inferential analysis of achievement of digestive system of the school. It results that Traditional Teaching Students' posttest mean (9.40±.699) was higher than the pretest mean (6.10±1.197) whereas the virtual modes of learning performance was better than the traditional students' performance. When $\alpha=0.05$, the p value (<.00) indicates significant difference between the outcomes of pre and post of digestive system test of traditional learners' performance. The $t_{(9)}=7.359$ was significant. Similarly, Web Reading students' posttest mean (12.33±1.155), Online Flash Model students' post test mean (12.36±1.027) and Online YouTube students' posttest mean(12.44±1.014) were surprisingly better than their respective pretest mean. Their respected t value ($t_{11}/7.176$, $t_{10}/11.353$ & $t_8/11.068$) was significant. Conversely, online animation students' posttest mean (12.60±9.843) was surprisingly greater than the pre test mean (8.30±1.05) and that posttest mean was better than other virtual and traditional learning performance. The $t_{(9)}=10.864$ was significant.

Hypothesis 2. There exists significant difference in the overall pre-test and post-test of web reading, online animation models, online flash models, online youtube learning, and traditional learning.

Table 1.2 ANOVA of overall pretest and posttest of web reading, online animation models, online flash models and online YouTube learning and traditional learning.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	358.163	1	358.163	173.283	.000
Within Groups	210.827	102	2.067		
Total	568.990	103			

The $F_{(1/102)} 173.283$ when the level of significance is set at 0.005, the small p value (.000) indicates significant difference in overall pretest and posttest of web reading, online animation models, online flash models and online YouTube learning and traditional learning.

Hypothesis 3. There exists a significant effective method among the web reading, online animation models, online flash models, and online YouTube learning over traditional learning.

Table 1.3(a) ANOVA of overall pretest and posttest of web reading, online animation models, online flash models and online youtube learning and traditional learning methods.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	124.514	4	31.128	6.933	.000
Within Groups	444.477	99	4.490		
Total	568.990	103			

Table 1.3(a) reveals the ANOVA result of the outcomes of pre and posttest of learning digestive system through web reading, online animation models, online flash models and online YouTube learning and traditional learning. Like the total five methods comparisons, the results favoured the post intervention outcomes of the students ($F_{(4,99)} 6.933 p < .000$). Hence, there existed a significant difference among the methods such as web reading, online animation models, online flash models, and online YouTube learning over traditional learning.

Table 1.3(b) Scheffe Multiple Comparison among the learning methods such as web reading, online animation models, online flash models, and online YouTube learning over traditional learning.

(I) Methods	(J) Methods	Mean Difference (I-J)	Std. Error	P
Traditional	web reading	-2.792*	.642	.002
	online animation models	-2.700*	.670	.004
	online flash models	-2.841*	.655	.002
	online youtube	-2.750*	.688	.005

Table-1.3(b) interprets Scheffe Multiple Comparison of pretest and posttest level of analysis of web reading, online animation models, online flash models, and online YouTube learning over traditional learning. The mean difference between Traditional and Web reading & online flash model (-2.792 & -2.841 $p < .005$) was significant and both Web reading and online flash method was effective over the traditional method of teaching. Similarly, The mean difference between Traditional and Online animation & Online YouTube model (-2.700 & -2.750 $p \leq .005$) was significant and both Online animation & Online YouTube model was effective over the traditional method of teaching. Figure-1 Comparison among the pretest and posttest mean score of web reading, online animation models, online flash models, and online YouTube learning over traditional method of teaching

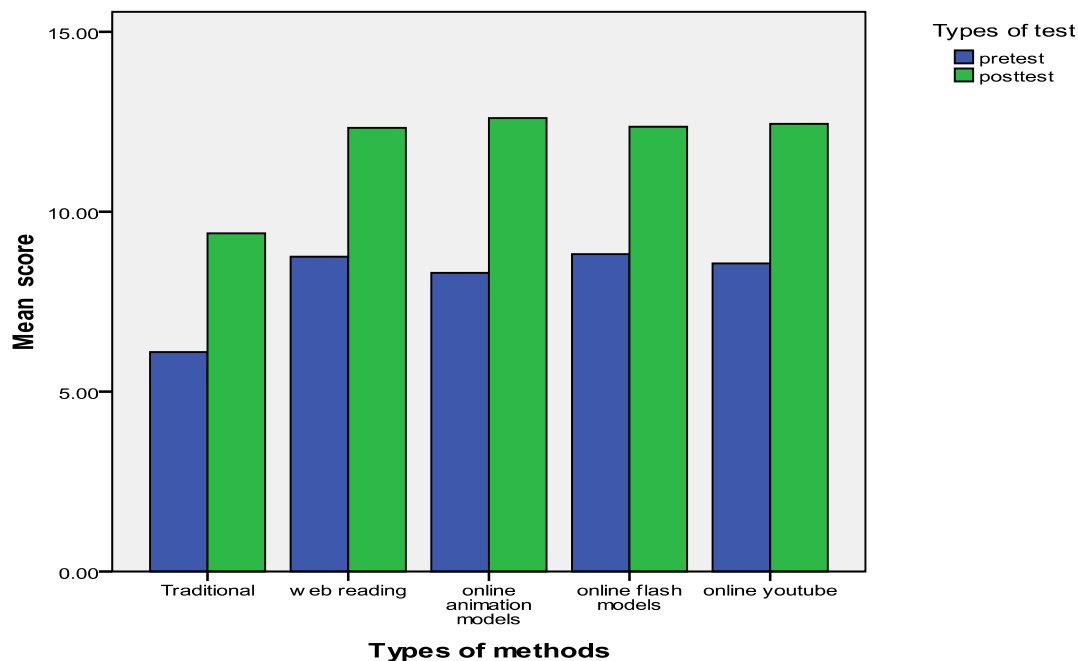


Figure 1 interprets the comparison among the pretest and posttest mean score of web reading, online animation models, online flash models, and online YouTube learning over traditional method of teaching. It showed two distributions in the histogram on the same ordinate axis, the pretest and posttest scores of web reading, online animation models, online flash models, and online YouTube learning over traditional method of teaching. The vertical line (the Y axis) OY, and the horizontal line (the X axis) OX represents the types of methods and mean score respectively. Y axis represents the scores with mean pretest and posttest score measured from the origin

such as web reading(8.75 & 12.33), online animation models(8.30 & 12.60), online flash models (8.82 & 12.36), and online YouTube learning (8.56 & 12.44) over traditional (6.10 & 9.40) method of teaching.

Discussion

The author experienced that science education needs the effective teaching, and that could only be fulfilled by the virtual model of teaching. However, it is a challenging task in front of world of educationist to prepare course materials in these virtual models because virtual teaching strategies are the new hope and new possibility to make significant incremental changes in epistemology, pedagogy, and practice in science education. Moreover, there is no difficulty for implementing these virtual models, in pedagogy and practices. These should be included in the curriculum for classroom transaction at elementary level but *who will implement these, where these should be implemented, are the recent questions?* The researcher experienced that the children recognised specific organs in their own bodies which they associate with the intake of food and air (Garcia-Barros, et al, 2011). Teaching school students about the digestive system is not a challenging task for a teacher, but how, traditional method help students to realise the chewing and other inner activities performed in oesophagus, stomach, small intestine, large intestine. Similarly, how students observe the mechanism of breaking down of food, enzymatic activity of pepsin and amylase, antibacterial activity of hydrochloric acid, and the importance of the villi for absorption, without animation or any other movable images (Sorgo et al 2008). In fact, both real and virtual environments necessary while teaching natural sciences (Vilkoniene, 2009). Similarly, testing the pH of various liquids is one of the most popular activities in 5th- through 8th-grade classrooms and virtual learning an opportunity to learn the structure and function of human digestive system (Kim, 2008 & Teixeira, 2000) and not only these, other activities would necessary in the teaching of science (Peiter, 1996). Therefore, more information sheets, one or more activity sheets and a detailed lesson plan includes lesson objectives, a list of supplementary teaching and classroom materials includes laptops, internet facilitate computer laboratory, evaluation items, and answer keys to the student should be supplied. Hence, the teachers of the world will realize the importance of virtual models of teaching science, and I think, the result might be encouraging. The evidences also found that teachers have positive attitude, value, belief, and behavior, towards new method of teaching. Therefore, the teachers' of the world should realize and try to apply these virtual models in science learning.

Conclusion

Teaching Science through web reading, online animation models, online flash models, and online YouTube learning is not a challenging task for the world of teachers. To promote these, seminars, conferences, and workshops should organize to develop modules to apply at the grassroots level. The teacher training institutes, teacher educators, policy makers, and curriculum framers, should utilize the effectiveness in practical situation. It should introduce in the primary and secondary teacher training classes to train the pre-service teachers those they apply in the primary and secondary classes. The educationist, administrators, teachers, and student community should realize the significance of web reading, online animation models, online flash models, and online YouTube learning. Open, distance learning, corresponding courses should be open through web reading, online animation models, online flash models, and online YouTube learning over traditional learning and those should free for all age or group of learners. In this paper, the author has tried to present the theoretical foundations of virtual models with a little bit of experiment for its generalization. While at first glance, virtual model may appear to understand the foundations for this tool and its proper use will lead the user to see that, this is truly a profound and powerful tool. The researcher wish to use this document as a foundation for further experiment, and this needs critique, and dialogue regarding the use of this tool. The researcher invites his entire colleagues to use these virtual models as a teaching tool. In his opinion, virtual model should apply for the generalization for long-term benefits.

Educational implications

In preliminary, the researcher faced trouble during the implementation of web reading, online animation models, online flash models, and online YouTube learning model, among elementary school students, but in the experiment, he experienced a lot. For further study, he has established this model in front of a world of education for its proper course development and its improvement. As a result, it is recommended the world of colleagues to attempt this practice during instruction to the elementary students in the teaching of science.

Useful for curriculum development

The policy makers and educationist should take incentive to design web reading, online animation models, online flash models, and online YouTube learning model curriculum for all subjects in science. The student should classify the themes that they want to emphasize and they organize knowledge differently to challenge their ways of thinking but in traditional course plan students have no freedom to think or organize knowledge. In the web reading, online animation models, online flash models, and online YouTube learning model, student could identify related concept from the HTML text, which helps them to move beyond traditional disciplinary boundaries. In fact, the ontology model curriculum helps students and teachers to select appropriate instructional materials. The curriculum framer may facilitate to reconceptualise the web reading, online animation models, online flash models, and online YouTube learning course of content to provide a base for discussion among students. This web reading, online animation models, online flash models, and online YouTube learning curriculum can help to develop courses integrated, logically sequenced, and have continuity with previous and new knowledge.

It is applicable in the formal schooling

The greatest challenge is to introduce web reading, online animation models, online flash models, and online YouTube learning model in formal schooling. Teachers need to become familiar with the use of web reading, online animation models, online flash models, and online YouTube learning model first than it will be easiest to use in general classroom situations. Teacher education programs should adopt such model for the learning.

For open, corresponding and distance education

Web reading, online animation models, online flash models, and online YouTube learning model is an emerging model needs the wide use in universities and institutions around the globe. The researcher realised that this model also useful for open, correspondence and distance education and the self-instructional material should design sequentially in such a way that learners would realize the real classroom or campus at their home.

Acknowledgement

I thank our colleagues for their great support. I apologize to all those participants who were directly participated in the study that I could not mention their names in this report due to the ethical constraints.

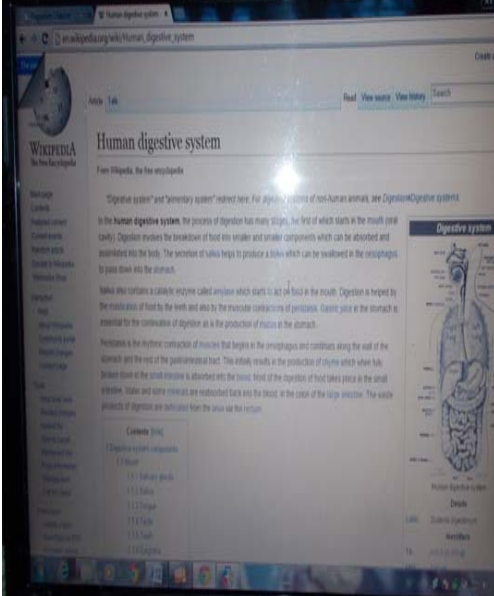

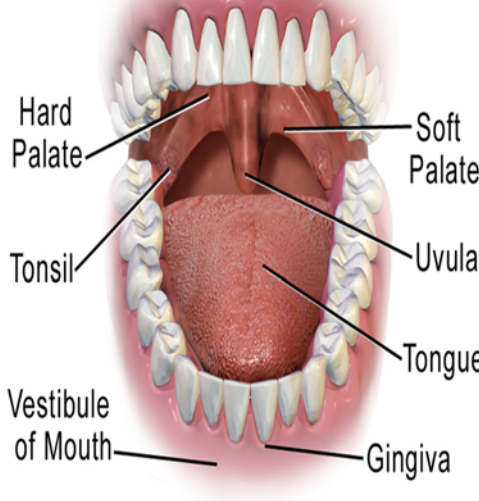
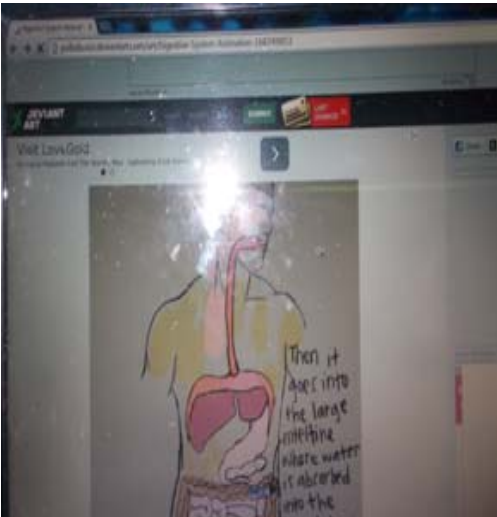
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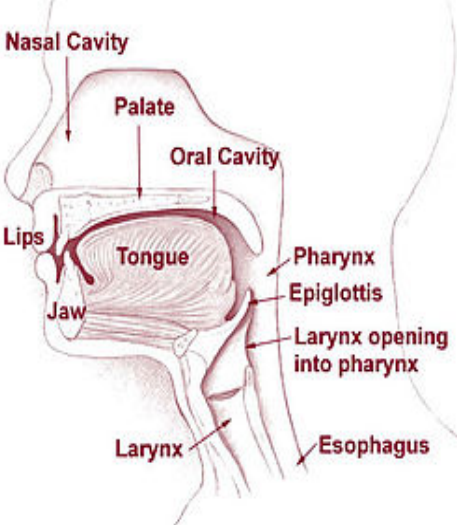

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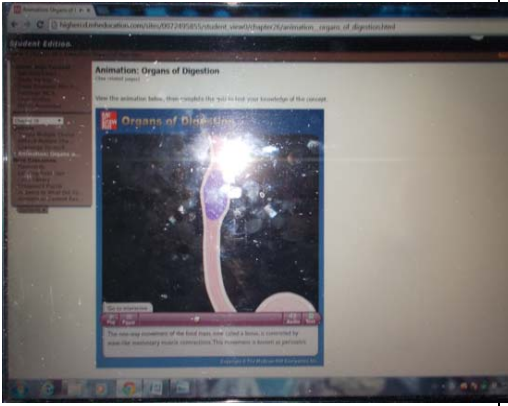
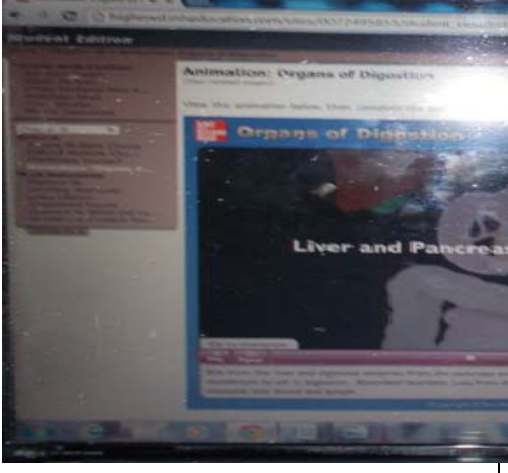
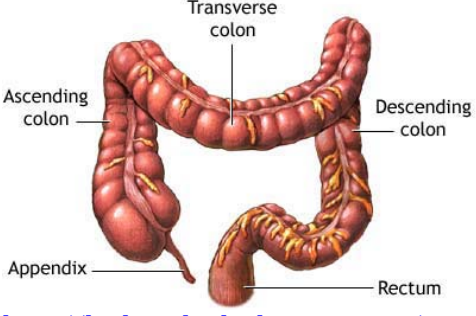
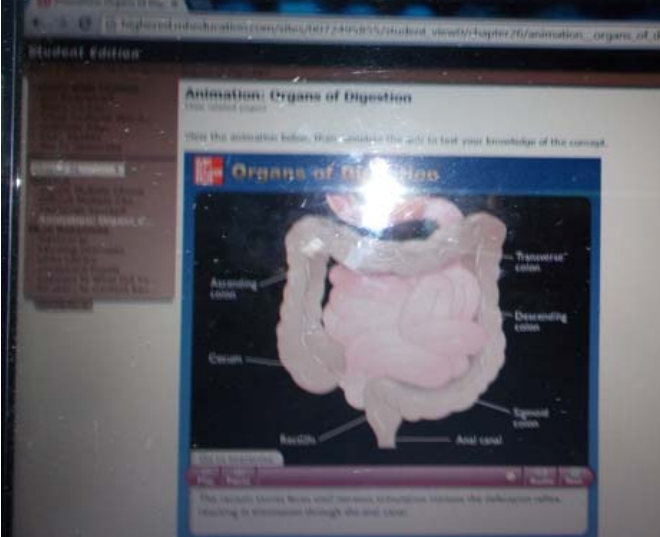
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Appendix-I

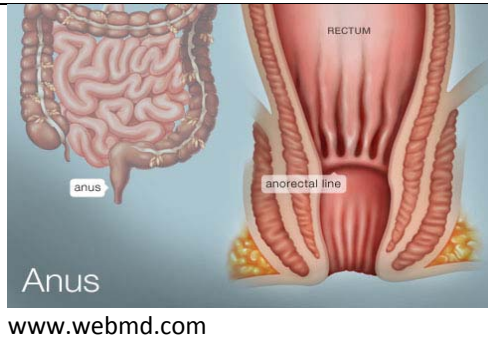
Activity-I assigning students to read web and to watch online animation models, online flash models, and online YouTube learning model the animation and flash models of human digestive system

Concept	Diagrams	Identification & Discussion
<p>Digestion</p>	 <p>http://en.wikipedia.org/wiki/Human_digestive_system</p>	<p>These are the different external and internal organs, but their structure performs different functions in food digestion. www.youtube.com/watch?v=1h2VW8USCAA</p> 
<p>Mouth</p>	 <p style="text-align: center;">Mouth</p> <p>http://en.wikipedia.org/wiki/Human_mouth#/media/File:Blausen_0653_MouthAnatomy.png</p>	<p>In the mouth, teeth break the food and grind into smaller parts and at the same time, saliva makes them into bolus.</p> <p>http://polkabeast.deviantart.com/art/Digestive-System-Animation-168749853</p> 

<p>Pharynx</p>	 <p>The diagram shows a sagittal cross-section of the human head and neck. Labels include: Nasal Cavity, Palate, Oral Cavity, Lips, Tongue, Jaw, Pharynx, Epiglottis, Larynx opening into pharynx, Larynx, and Esophagus. The pharynx is shown as a funnel-shaped muscular tube at the base of the oral and nasal cavities, leading to the esophagus.</p> <p>http://en.wikipedia.org/wiki/Pharynx#media_viewer/File:Illu01_head_neck.jpg</p>	<p>The pharynx is a funnel-shaped muscular tube and it is the common route for both food and air into esophagus where epiglottis is a security guard or the gatekeeper for both esophagus and lungs.</p>
<p>Oesophagus & stomach</p>	 <p>The screenshot shows a web browser window with the URL http://highered.mheducation.com/sites/0072495855/student_view0/chapter26/animation_organs_of_digestion.html. The page title is "Animation: Organs of Digestion" and it features a colorful 3D anatomical model of the human digestive system, including the mouth, esophagus, stomach, and intestines.</p>	<p>The esophagus helps to move the food from the mouth to the stomach. The stomach is existed between the esophagus and the small intestine. It secretes digestive enzymes and HCl to aid in food digestion and send the partially digested food to the small intestine.</p> <p>http://highered.mheducation.com/sites/0072495855/student_view0/chapter26/animation_organs_of_digestion.html</p>

<p>Peristalsis & stomach</p>		<p>The contraction and relaxation of muscles inside the esophagus, creates a wave and down the muscular tube is peristalsis. The peristaltic wave occurs when the bolus enters the esophagus and down the bolus into esophagus and into the stomach.</p> <p>http://highered.mheducation.com/sites/0072495855/student_view0/chapter26/animation_organs_of_digestion.html</p>
<p>Small intestine, liver and pancreas</p>		<p>Inside the stomach, Hydrochloric acid breaks down the food into small parts and supply to the small intestine. In the small intestine, food neutralized into molecules and absorbed into the blood stream.</p> <p>http://highered.mheducation.com/sites/0072495855/student_view0/chapter26/animation_organs_of_digestion.html</p>
<p>Large intestine</p>	 <p>http://highered.mheducation.com/sites/0072495855/student_view0/chapter26/animation_organs_of_digestion.html</p>	<p>The large intestine divided into ascending colon, transverse colon and descending colon, which recovers water from the food.</p> 

Anus



The colon collects indigestible parts of food and refuses in time.

www.learnerstv.com/video/Free-video-Lecture-258-biology.htm

Appendix-II

Activities Sheet

Student activities	Conception
<p>Activity-1 List the terms related to digestion</p> <p>What are these organs related to digestive system, that we have learnt earlier? Draw these organs.</p> <p>What do you know about the digestive system? Please discuss each other.</p> <p>Activity-2 sorting and classifying organs</p> <p>Students are individually advised to draw a diagrams or each group draw a part of the diagram.</p>	<p>Mouth Pharynx Oesophagus Stomach, liver, pancreas Small intestine Large intestine Rectum anus The digestive system catabolic process by which food simplifies and absorbs into the blood, and the remaining goes outside of the body.</p>
<p>Activity-3 Do you know the work of teeth and tongue?</p> <p>Do you guess saliva be helpful in digestion?</p> <p>To know the chewing force of the jaws, students are advised “take a piece of apple on the table to understand the importance of the mechanical breakdown of food”.</p> <p>Activity-4(a) chews a piece of apple and grinds a piece of apple by a grinder. See, are these equal?</p>	<p>In the mouth, teeth break the food into smaller parts in the same time saliva simplifies and makes into bolus. Saliva makes the food wet and makes it easier to swallow so you do not choke.</p>
<p>Work sheet-(write what you perceive?)</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>Activity-5 enzymatic activity of pepsin and amylase,</p> <p>Take two or more teaspoons of saliva of your own and collect these in a bottle. Chew few dry potato chips and after a few minutes add a few drops of saliva to the chewed potato chips. After that add a drop of iodine and see the color of that chewed potato chips.</p> <p>Work sheet-(write what you perceived?)</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Saliva contains amylase and potato chips have starch (sugar). Starch simplified due to act of amylase. In presence of iodine, starch converted into dark color.</p>

Activity-6 pH test

Testing the pH of various liquids is one of the most popular activities in 5th-grade classrooms.

Take pH paper and test their change of colors.

- Saliva(mouth)
- HCl(stomach)
- Sea water(alkalinity)
- Urine(alkalinity/acidic)
- Blood(alkalinity/acidic)
- Lemon juice(acidic)

Activity-5 Oesophagus

From the mouth, where does the food enter?

Rubber tube and semisolid mud

Take a rubber tube and put some semi solid mud. Hold it vertical and see, what happen?



Work sheet-(write what you perceive?)

Acidic liquids like; HCl, lemon juice (pH below 7) turned the paper red while alkaline liquids like; saliva, urine seawater (pH above 7) changed the pH paper blue or purple. Litmus paper is good for roughly estimating the relative pH of liquids. Alkalinity reduces acidity and totally changes into neutral.

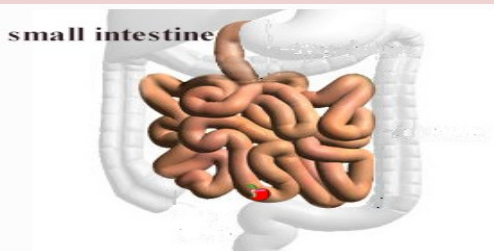
The esophagus is a long muscular tube, extended into the stomach. Food does not travel not by itself; rather it pushed due to contraction and relaxation of the muscles. This is peristalsis. It takes only few seconds to send the food into the food to the stomach. However, the esophagus moves the food from the mouth to the stomach

Activity-6 Stomach

Do you know the function of this bag like organ?

Hydrochloric acid and sea water

In the stomach, Hydrochloric acids break the food down into parts that absorb into the blood supply at small intestine. Inside the stomach hydrochloric acid used to regulate the basicity (pH) of solutions



www.uen.org

Activity

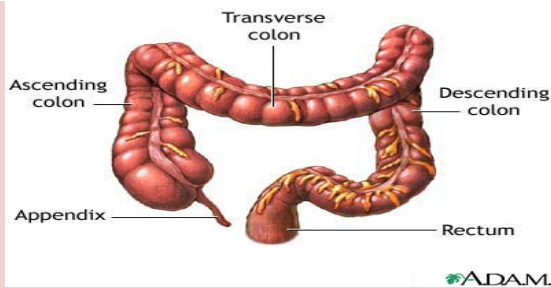
What is that? Have you seen this at chicken centre?

Inside the stomach, Hydrochloric acid breaks down the food into small parts and supply to the small intestine. In the small intestine, food neutralized into molecules and absorbed into the blood stream.

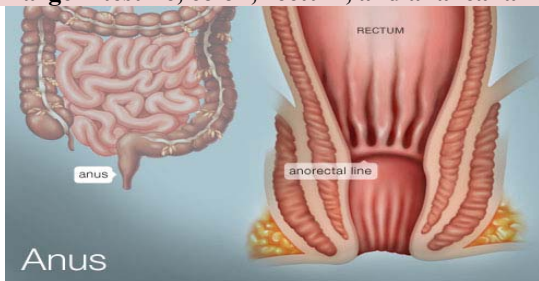
The average length of the small intestine in an adult human male is 6.9 m and in the adult female 7.1 m. It is approx. 2.5–3 cm in diameter. Most of the digestive enzymes that act in the small intestine are secreted by the pancreas and enter the small intestine via the pancreatic duct. Digested food is now able to pass into the blood vessels in the wall of the intestine through the process of diffusion. The small intestine is the site where most of the nutrients from ingested food are absorbed. The inner wall, or mucosa, of the small intestine is lined with simple columnar epithelial tissue. The food that remains undigested and unabsorbed passes into the

large intestine.
www.wikipedia.com

See text and make a note



Large intestine, colon, rectum, and anal canal



www.webmd.com

Activity

Anus

Do you know where undigested food go outside? If your answer is anus, see the structure....

The large intestine is about 4.9 feet (1.5 m) long, which is about one-fifth of the whole length of the intestinal canal. Its function is to absorb water from the remaining indigestible food matter, and then to pass useless waste material from the body.

The anus is an opening at the opposite end of an animal's digestive tract from the mouth. Its function is to control the expulsion of faeces, unwanted semi-solid matter produced during digestion,

Online Learning Method in Hue University's College Of Education With Credit System In Vietnam: Actual Situation And Solutions To Improve Efficiency

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Abstract: From analysis of some reality and conditions in teaching and learning in the credit training system of informatics subjects in Hue Unniversity's College of Education which the author taught online via the website www.elearning.dhsphue.edu.vn, the author has suggested elearning organizational model with support of internet and web technology for two objects: students for none Specific Purposes (NSP) learning “basic information technology subjects” and IT students for Specific Purposes (ITSP) learning “software engineering subjects”. From statistics of the results and feedbacks from the learners of the kinds of training, the author has suggested elearning organizational model appropriate with the credit training systems in Hue Unniversity's College of Education.

Keywords: E-learning, Education, Credit system, Online learning in Vietnam.

1. Introduction

Currently the IT application in teaching has been implemented most of the provinces, the regions and the schools. Particularly, the IT application in the universities is imperative when switching from traditional training to credit system. There are a lot of software to be deployed to support building e-lesson as PowerPoint, Violet and supporting software to multimedia: Windows Movie Maker, Macromedia Flash. But that is not meeting the development requirements of credit system such as a Learning Management System (LMS) with many features that enable students and teachers to online communication with each other to promote positive and proactive in teaching and learning. We have chosen Moodle software and building online learning system through the domain name Elearning.dhsphue.edu.vn. We have organized the teaching on this system and were used the features as follows: [2, page 2]

1.1. Learners

- Learners are attending and proposed topics for discussion (by forum).
- Download lectures and supporting software.
- Teamwork (by group).
- View and receive feedback from other learners or teachers (by mail, chat)
- Their schedule and activities in school (by report).
- You can do the online test with questions: multiple choice, essay...And receive answers, results on the system (test).

1.2. Teachers

- Make lesson and use multimedia technology by web tool.
- Upload materials, exercises.
- Monitor each student activity.
- Creating online tests; support and view the student results.
- Allow create topics and exercises. Students can upload group exercises. Teachers comment through email.
- Export and mark results to word, excel to send to campus.

In particular, the evaluation of results and academic sense is objective as well as training skills: self-learning, self-study and teamwork.

2. Actual situation of IT application in Hue Unniversity's College of Education[3, pg.1-3]

2.1. The curriculum, textbooks, lectures

The credit system curriculum applied from 2009 for 3rd and 4th year students. In 2012 is the first year applicable for all students in Hue Unniversity's College of Education. So credit system curriculum just perfect and complementary to match.

Textbooks, lectures deployed in late 2010 with limited budgets, so only some courses or majors are selected and standardized into lectures and multimedia curriculum instead all. Online learning through the domain name Elearning.dhsphue.edu.vn after two years of implementation, its effectiveness has still not as expected, namely:

- The lessons, textbooks build ExE software (elearning standard) for mostly over 40 years old are accepted, but it is not yet being applied e-lessons by elearning standards.
- The lessons by elearning standard are uploaded in the domain: elearning.dhsphue.edu.vn limited: in 2 years with 9 teachers create lessons, 4 teachers have uploaded full lessons. Among, 1 teacher is teaching online in the system, others are upload lessons to students read or download (elearning.dhsphue.edu.vn) while the efficiency of online learning brings proven by the above results, many universities in Vietnam have been applied. In Hue University, Hue Learning Resource Center and Youth Union-University of Medicine and Pharmacy has organized a conference: "application information technology building online lessons" in young lecturers in 04/2011.
- The construction of e-lessons from website Hue University: Elearning.hueuni.edu.vn, from Violet, ExE software... not to be integrated into the system..

2.2. Lecturers and IT application

Although, the campus is very concerned about improve IT skill issue for staff, especially the teaching staff, however the reality is:

Currently, young teachers (rate 50% all staff) have the number of hours of teaching very little. Thus, when old teachers retire or change working, then young teachers have not taught the course immediately, especially accumulated experience and practical method issues.

Experience of old teachers is much, but IT application skills are very slow, while your teachers reversed. Therefore, IT application skills have difficulties, problems (too interested in the techniques and tools rather than the quality of lessons and effective of lesson with student).

2.3. IT skills

IT skill of students is very slow. Initiative and self-study are limited... Usually, they still are learning to deal or wait near exam time to review knowledge... more than to equip themselves professional skills and orientation for the future.

2.4. Testing and evaluation

The assessment of teachers is limited and can not checked regularly, the traditional test takes time and effort, so teachers often less investment and monitor the learning process, sometimes evaluation is still sentiment of teachers so quality and objectivity is not high.

2.5. Learning conditions

Currently, conditions infrastructure of campus is limited... Server systems through the domain: elearning.dhsphue.edu.vn weak or interrupted, the Moodle software was faulty about data storage. Low internet speed so you do not allow more students in the same one time (we tested network bandwidth at the lab room about upper 20 computers access causing local congestion). The ability to use the internet and computers of learners are very slow.

2.6. Management and administration of E-learning activities

E-Learning system operates by the network manager (network congestion, error system and software, reset the course data, turn off). The administrator will register course for learners, error password, log, re-signed new class...

3. Evaluation results and main solutions

On the basis of analyzing the advantages and disadvantages of traditional method with e-learning method, as well as analyze the situation and conditions for implementing e-learning form of different learning objects. We organize teaching e-learning form throughout the academic year 2009- 2010, 2010-2011 to collect survey and feedback from the learners, namely:

3.1. Evaluation objects

Hue University's College of Education organizes teaching for full time training, pathway program students for IT major with software engineering subjects and for full time training, in service training students for Non-IT major with basic information technology (General Informatics, Office Informatics) subjects in campus, other location such as: An Giang, Ba Ria-Vung Tau, Dong Nai, Quang Tri province.

3.2. Feedback from learners [4] and evaluation results

The database below is exported from the system elearning.dhsp hue.edu.vn by author research by e-learning from, including storage of feedbacks to assess and statistics. Checking the authenticity of the information readers can open the link: Elearning.dhsp hue.edu.vn (see statistical results and the report of the IP address, the number of participating in learning activities how we can check who is attending online learning).

- Full time training -Information Technology Major Student

Choice	Dislike	Anxiety	Like	Interested	Very interested
%	0%	2.1%	6.3%	20.8%	70.8%

Table 1. Quick Survey: 54 students (Are you excited about the online learning method?)

Table 1 shows that: with a rate "Interested" and "Very interested" are 91.6% the rate is very high.

Content	Good	Pretty	Medium	Poor
Content suitable curriculum	39%	50%	11%	0%
Update and adaptation	67%	17%	17%	0%
Learners-central focus	61%	22%	17%	0%
Coordinate with personal or group form	67%	11%	22%	0%
Self-learn and self-study	61%	17%	22%	0%
Appropriate with credit system	61%	11%	28%	0%

Table 2. Feedback from learners: 54 students

Table 2 shows that: rate 67% are "Good" for questions: "Update and adaptation" and "Coordinate with personal or group form"; rate 100% is "Medium" for all questions. That mean Online learning method means is responsive to requirements of learners surveyed.

- Full time training -Information Technology Non-Major Student

Table 3. Quick Survey: 177 students (Are you excited about the online learning method?)

Choice	Dislike	Anxiety	Like	Interested	Very interested
%	1.1%	22%	15.8	44.6%	16.5%

With a rate 22% are “Anxiety”, reason: the first-year students are not familiar with the use of computers. Now, they must use the application from the Internet on computers. With a high rate 61.1% are “Interested” and “Very interested”.

Table 4. Feedback from learners: 177 students

Content	Good	Pretty	Medium	Poor
Content suitable curriculum	45%	41%	11%	3%
Update and adaptation	44%	39%	16%	1%
Learners-central focus	55%	26%	15%	4%
Coordinate with personal or group form	26%	32%	30%	11%
Self-learn and self-study	66%	22%	10%	2%
Appropriate with credit system	47%	35%	15%	3%

Table 4. shows that: rate 66% and 55% with “Good“ fit the requirement of learners about “Self-learn and self-study“ and “Learners-central focus” but with rate 26% doesn't improve teamwork. Rate 1% to 4% with “Poor” for the most content is an acceptable rate.

3.3. Statistical learning results of general informatics course [4, page. 1-2]

- Traditional group:

Mark	Normal %	086011B	%	086011A	%	602502	%	085021A	%
F	17.43	4	8.00	6	11.76	19	20.43	26	26.53
D	48.85	21	42.00	19	37.25	50	53.76	54	55.10
C	26.83	19	38.00	20	39.22	18	19.35	18	18.37
B	6.42	6	12.00	5	9.80	5	5.38	0	0.00
A	0.46	0	0.00	1	1.96	1	1.08	0	0.00
Num	436	50		51		93		98	

- Elearning group:

Mark	Elearn-ing %	Class 20	%	Class 19	%	Class 12	%	Class 05	%	Class 02	%
F	1.64	3	6.67	7	14.29	11	22.00	0	0.00	3	3.30
D	20.22	17	37.78	21	42.86	31	62.00	10	21.74	27	29.67
C	33.88	20	44.44	15	30.61	7	14.00	23	50.00	39	42.86
B	18.03	5	11.11	6	12.24	1	2.00	12	26.09	21	23.08
A	1.09	0	0.00	0	0.00	0	0.00	1	2.17	1	1.10
Num	183	45		49		50		46		91	

Note: (Mark F: <=3.9; Mark D: >=4, <=5.4; Mark C: >=5.5, <=6.9; Mark B: >=7, <=8.4; Mark A: >=8.5)

The statistical results are the final test of students who participate in online courses compared to traditional classroom (to ensure the objectivity of the results, we only choice "General information course" because it is a common course with many different teachers, curriculum content, time, practice... The same, final exam was got from the bank exam, the examiner, the subject completely independent no impact of teachers in the result. We choice final test instead of summative mark because Summative mark = (overall course mark*4+ final exam mark*6) /10 [6], overall course mark is decided at their teacher.

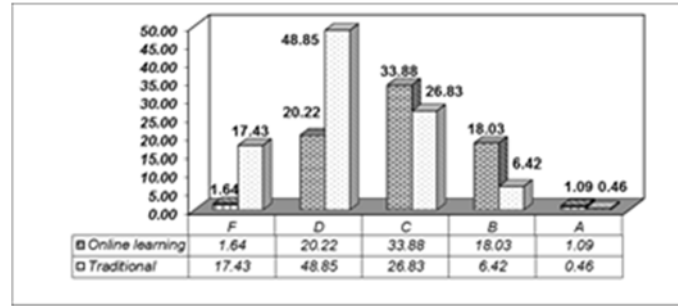
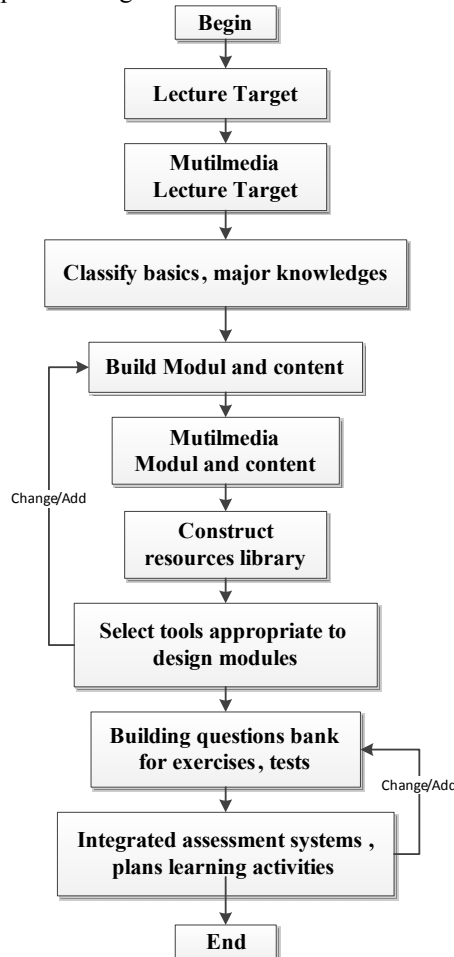


Figure 1. Chart to Comparing level marks from low to high of two teaching forms

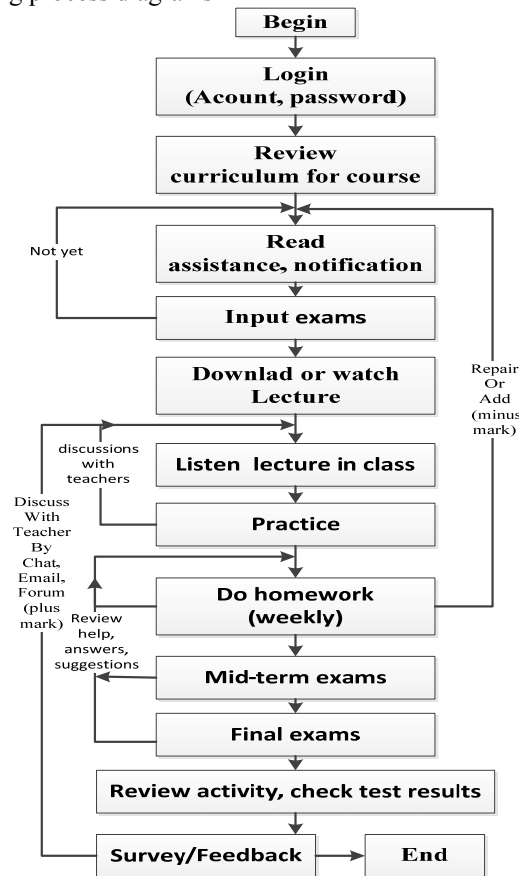
The chart shows that the difference between good marks ≥ 8.5 (A) is not significant when comparing the two learning methods; however, there is a clear improvement in marks $\geq 5.5, \leq 8.4$ (Level B and Level C), and especially rapid decrease in the ratio of the lowest marks (Level F) from 17.43% to 1.64%.

4. Proposed learning process

4.1. Teachers: Figure 2. Teaching process diagrams



4.2. Learners: Figure 3. Learning process diagrams



5. CONCLUSION

E-learning at present and in the near future can not yet completely replace the traditional method, which must have combined to bring high efficiency most students in the teaching - learning process.

Elearning is an approach consistent with credit system, the difficulties when deploying attributed: telecommunications infrastructure (server systems, internet), the level of awareness of students, limited about learning tools... are inevitable, but if Students, teachers, administrators, they are interested the teaching organization will achieve higher efficiency. Next our research will apply this method for high schools where our students will become teachers and expand object: learners in Hue University and in Vietnam.

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PODCAST ACCEPTANCE TO ENHANCE LEARNING SCIENCE VOCABULARY AMONG IRANIAN ELEMENTARY STUDENTS

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Abstract: Although using technology tools is not new trend in education, still unavailability of some IT infrastructures may led to less use of educational tools and rollback to traditional teaching style. On the other hand access to cheap technology devices and internet provided a better chance for teachers and students to have wider access to educational resources. However podcasting is not a new brand technology but it has a potential to enhance teaching and learning process. This paper prepared an overview report of previous studies conducted on using podcast in learning and investigated challenges and difficulties of using podcast in teaching and learning science vocabulary among Iranian primary students.

Key Words – Instructional design , Podcast- - learning science- learning vocabulary

1.INTRODUCTION

The rapid development of technology has touched almost all aspects of life such as education. “It is almost impossible to think of education without also thinking about the many different kinds of technology used to support education” (Spector, 2012). Learner's acceptance as a receiver of knowledge which is assisted by technology can contribute to usage of specific technology as main or supplementary tool in educational. In contrast, absence of learner's adoption can present a barrier on motivation and engagement to technology (Ajjan & Hartshorne, 2008).

Iran has introduced the use of technology in teaching and learning since 1972. According to Bingimlas (2009), there were many barriers during the implementation on the use of information, communication and technology (ICT) in Iranian education system. After the Iranian revolution, 10 universities are delivering all their instruction using electronic learning (E-Learning) system (Farajolahi & Dehbashi, 2009). The emergence use of technology in education system has growth, however the use of ICT in Iran higher education still considered as a new method for teaching and learning process. On the other hand regarding to Iran Ministry of Education ICT integration's instruction, technology should be blended in K-12 school's curriculum to enhance teaching and learning process specifically on important subjects. One of the main subjects is science which is taught from first grade in schools. Although importance of science subject is over emphasized, but according to Iran Ministry of Education Iranian students' achievement in Math and Science are lower than the global average (Hamshahri Online, 2014). One of the reasons that students have low achievement in science, might be they don't have clear comprehension of the context and content. Understanding the contents is effected by learner's vocabulary mastery. Glen and Dotger, 2009; Goldschmidt and Jung, 2011; Lee et al.1995 argued that “Science vocabulary knowledge plays a role in understanding science concepts, and science knowledge is measured in part by correct use of science vocabulary ” (Carrier,2013; P1). Due to fast development of technology their might be an open space to use technology to enhance teaching and learning science vocabulary in schools.

Many studies and researches (Bagozzi Warshaw, 1989; Okazaki & Renda dos Santos, 2012; Holden & Rada, 2011; Merhi, 2015; Ely, Pullen, Kennedy, Hirsch & Williams, 2014) are conducted by experts and scholars to evaluate user acceptance of new technology to improve, modify or localize products. In other words, user acceptance can determine the efficiency of new technological tools. On the other hand, many factors effect on user adoption of new technology. But two particular concepts of behavior as perceived usefulness and perceived ease-of-use have more influence on user acceptance (Davis, 1989).

Technology acceptance can be affected by using educational technology tools such as web-based tools (Marin, 2005) or Internet-based tools (Martínez, 2008) which are widely used in education. Although there are varieties of teaching tools in web-based or Internet based form, Podcast is considered one of the teaching aids which can be used as web or Internet- based tools. “Podcasting involves downloading a series of audio or video broadcasts (files) onto a digital media player, via a computer, over a period of weeks. These can be watched or listened to when, where and as often as students choose.” (Evans, 2008, p.1)

2. USING ICT IN IRANIAN EDUCATIONAL SYSTEM

The first sign of using ICT in teaching and learning in the Iran education system can be traced back to 1972. Iran Azad University started educating more people in the form of distance learning system and using audio, video tapes, educational films and providing face to face classes. It had a capacity of 6000 students. After the Iranian revolution, more development of information technology infrastructure in higher education led to the growth of

virtual universities. Nowadays around 10 universities are delivering all their instruction as electronic learning (E-Learning) System. Besides that, other universities have their own platform for administering some their instruction (Farajolahi & Dehbashi, 2009). Integration of ICT in the curriculum seems a complex process and some barriers such as educators' information technology skills which is led to diffident and incompetence feeling, lack training instruction to compile new method for lesson plan has negative influence on this area (Bingimlas, 2009).

Although there is increasing progress of ICT utilization in higher education and due to usage of ICT is considered as new method for teaching and learning, still many factors should be weighed in implementation level. "Important facilitating factors such as providing training programs, keeping academics informed on new developments in ICT, improving faculty members' belief on effectiveness of ICT and other factors imply on "ICT literacy" of academics in Iranian higher education community as a real and urgent need" (Vajargah, Jahani, & Azadmanesh, 2010, p.6). Moreover the Iran Ministry of Education demanded K-12 schools to use ICT in their curriculum and compiled instructions and guidelines to define ICT- based schools as smart schools in 2011 and required schools to start implementation of the guideline. "Smart school is the place which implementation of the entire process, including teaching and learning, educational materials and teaching aids is designed based on ICT" (Smart school instruction, 2011, p. 6).

Available studies indicated the improvement of teaching and learning process by using ICT. Based on one of the research studies in this area, technology helps students to organize their plan which is leads to higher motivation. "The evaluation of students of normal and smart high schools in Tehran show that there is meaningful difference between the educational self- image & the rate of learning in the students of normal and smart high schools such that these factors are high in the smart school students." (Hosseinpour, Allahviridiyani, Nejad, & Mohammadjami, 2011, p. 3). Also, similar experiences with smart schools in other countries showed enhancement of learning and teaching in the K-12 education system mainly in science and mathematics. Harrison (2002, 2004) found statistically significant associations between higher level ICT use and pupil achievement in Maths, Science, English, Modern Languages and Design Technology (Hamzah, Embi & Ismail, 2010). Nevertheless, accomplishment of ICT in schools, as in higher education, has similar barriers and need economic, social, cultural and government policy steadiness. (Zamani, 2010). However, some studies showed smart school positive impact in Iran educational system, some researches indicated that students and teachers did not show positive attitude in term of ICT utilization (Attaran, Alias & Siraj, 2012). According to this research, while providing ICT infrastructure is important, increasing motivation and paying attention to individual and cultural differences is important too.

3. PODCAST IN EDUCATION

Since 1990 with podcast innovation and public access to Internet and cheaper technical devices, podcast popularity statistically raised. Podcast features count as portability, interactivity, simple and easy to use so based on its characteristics. Podcast can provide a good educational condition for institutions and schools in K-12 and higher education to fulfilled students need such as reviewing the contents as much as they need or if students are not able to attend classes. According to Hew & Cheung (2013), the use of podcast does appear to have a general positive impact on student achievement.

Conducting researches on advantages of podcasting on teaching and learning process and students achievements were on researcher's spotlight. According to podcast availability over Internet or through portable devices, some studies suggested that podcasting can help development of mobile learning in education. Research in University of Minnesota podcast technology used as a tool to "To shift from e-learning to m-learning" (Ng'ambi & Lombe, 2012, p. 2). Moreover, podcast can be used as the main or supplementary tool. Based on podcast features students can listen or watch (in case of video podcast) the content as much as they need. So it can be a powerful tool for revising the lectures they did not understand or could not attend in the class (Hew & Cheung, 2013).

However, some experts have doubt about podcast efficacy on teaching and learning and podcasting can have some limitation such as technical problem or podcast irrelevancy (O'Bannon, Lubke, Beard, & Britt, 2011). Still podcasting creates opportunity for better understanding of courses as teaching aid. "Supplemental podcasting appears to serve as a valuable resource for students in the college classroom, which could provide enrichment to students beyond what a typical course and instructor can bring" (Walls et al., 2010, p.6). Fernandez, Simo & Sallan (2009) carried out a research on podcast and its impact on higher education. Based on their finding podcast is an influential tool which it's better to be used as supplementary teaching aids.

Although there is lack of research about podcast usage in the Iranian educational system, studies done in this area reported the Iranian students are ready to use podcast in 3 sub-scales "Through three sub-scales: access, familiarity, and experience" (Rahimi & Asadollahi, 2011, p. 3). The studies indicated that although students rarely have podcast experience as educational tools they have high familiarity with podcast. The researchers

mentioned that the main reason for not using podcast as an educational tool in Iran universities is that lecturers do not deliver their instruction by podcast.

4. ADVANTAGE AND DISADVANTAGE OF USING PODCAST

There is need to understand how technology can assist students for better learning. One way to have full comprehension is to compare the advantages and disadvantages of the medium in education. Podcast as intervention has cons and pros as well; however some studies suggested that using podcast didn't bring complete or dramatic changes in education (Taylor, 2009).

4.1 PODCAST ADVANTAGES

In 2008 Evans conducted a study on podcasting to evaluate the efficiency of mobile learning among Business and Management higher education students. Based on the result which collected by survey, "students believe that podcasts are more effective revision tools than their textbooks and they are more efficient than their own notes in helping them to learn. They also indicate that they are more receptive to the learning material in the form of a podcast than a traditional lecture or textbook." (Evans, 2008, P.1) Podcast may effect on students' belief about learning as well. A study carried out in 2014 to investigate if using podcast can change student's assumption about learning foreigner language. The result indicated that however changing belief about learning language seems hard but applying innovation in decrease negative perception on learning second language. (Basaran & Cabaroglu, 2014)

Producing podcast doesn't need high ICT skills, regarding this point students can also start to create podcast. A study administrated in sixth grade Portuguese music class presented that students can produce podcast and it has positive effect on students' active learning. In this study teacher has a supervision role and students produced podcast by themselves. (Coutinho & Mota, 2011)

4.2 PODCAST DISADVANTAGES

There are some criticisms about blending podcast in teaching and learning process. One of the main concerns about podcast it may have negative effect on students' presentation in class (Heydarpour et al. 2013). In contract Boney, Cizadlo, & Kalnbach, 2006; Copley, 2007; Frydenberg, 2006; Lane, 2006) argued that using podcast didn't have negative effect on students' attendance in class (Walls et al, 2010). Furthermore some scholars discussed about pedagogical aspect of using podcast. Based on their research podcast may led to passive learning instead of active learning (Jham, Durae Strassler, Sensi, 2008).

5. PODCAST IN LEARNING SCIENCE VOCABULARY

Learning vocabulary of content of a course has big influence on deeper understanding of the content. According to Alvermann and Phelps, 2002, Ehri and Rosenthal, 2007, Stahl & Fairbanks, 1986, "Vocabulary knowledge is a critical factor in comprehension, fluency, and achievement".(Putman & Kingsley, 2009, p.3). Also, many studies show the effect of vocabulary knowledge on other skills. Strenburge, 1987; Termen 1916 argued that "The finding of more than 100 years of vocabulary research include that, vocabulary knowledge is one of the best indicators of verbal ability" (Graves & Watts-Taffe, S; 2002), "Vocabulary difficulty strongly influences the readability of text" (Klare, 1984). Beck et al., 1982 discussed that teaching the vocabulary of selection can improve student's comprehension of that section (Samuels & Farstrup, 2011, p. 141). Due to importance of science which is difficult even from primary school, mastery in science vocabulary can enhance students understanding of the concepts in their science book if teachers can localize the meaning and the concept of the words for students. According to science structure which is project-based class and need more time for discussion and do experimental test, podcasting can be effective teaching aid (Kurtz et al., 2007). Some studies show that using podcast can enhance students' science vocabulary. "Increase in scores on the vocabulary tests for the group given access to the podcasts was significantly greater than those in the group that received only classroom instruction." (Putman & Kingsley, 2009, P.7)

6. POSCAST EQUIPMINT

One of the advantages of podcasting is to producing podcast it needs simple, available and affordable equipment. However there are very professional and expensive equipment. The main equipments will categorize in 3 sections as follow:

6.1 HARDWARE

The first thing for producing podcast is a suitable hardware such as microphone. There are varieties in microphones and teachers don't need to provide the expensive of, just simple with good quality is enough to record their voices. However with development of good quality technology simple voice recorder such as MP3 player works fine as well. There are many types of recorders with special features. Moreover with better public access to cellphone or smart phone, people can record their voices via there cellphones. Most cellphones and smart phones have the recording feature and there is no need to buy other equipment. Furthermore many laptops and personal computers have the recording option and user just needs to enable this option. Figure 6.1, Figure 6.2, Figure 6.3 and Figure 6.4 shows the example of microphones, voice recorder, cell phone with voice recorder option and smart phone with voice recorder option.



Figure 6.1 Example of microphones



Figure 6-2 Example of voice recorder



Figure 6-3 Example of cellphone with voice recorder option



Figure 6-4 Example of smart phone with voice recorder option

6.2 SOFTWARE

Perhaps while recording the podcast or after recording, teachers might need to edit the audio file to include other information or omit some part of the file. Although based on experience after a while there is no or less need for sound editing. There are many software to correct and modify the audio file. However some of them are complex and expensive software for sound editing but regarding to popularity of this type of software, most of them are free and easy to use. Furthermore, there are many online forums to help users to operate with sound editing software. In addition in most of the software there is Help for users.

Moreover, there are some mobile applications that enable user to edit the file on their smart phones. Figure 6.2.1 and figure 6.2.2 shows example of software for sound editing and example of mobile application for sound editing.

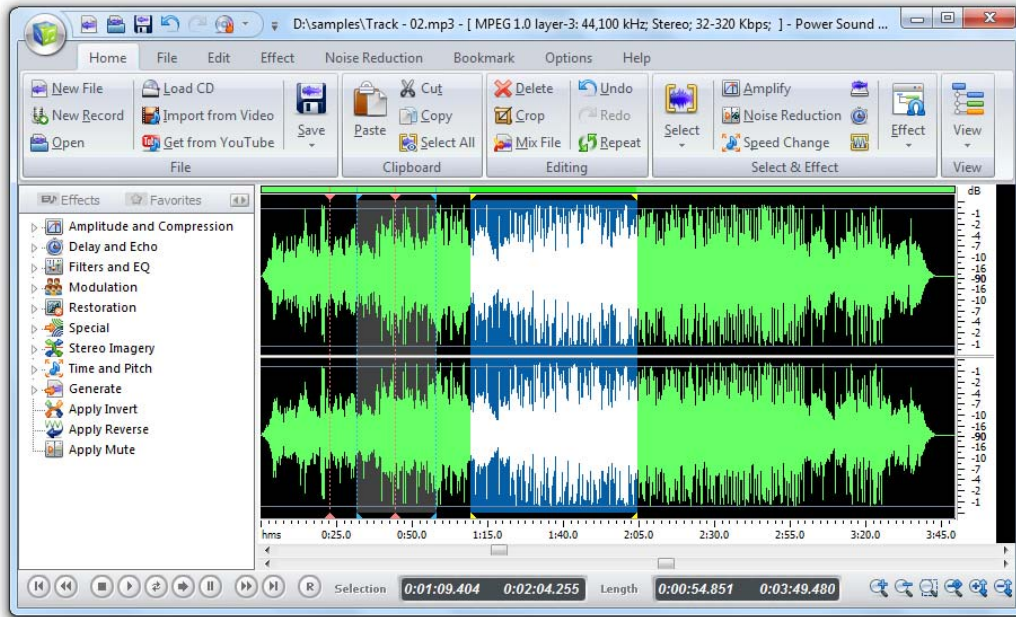


Figure 6.2.1 Example of software for sound editing

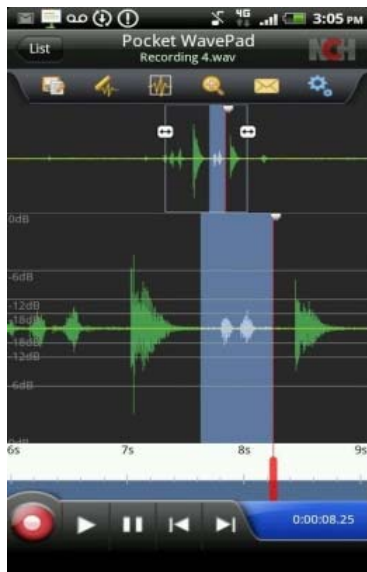


Figure 6.2.2 Example of mobile application for sound editing

7. DISTRIBUTION

Regarding to flexibility of podcast there are many ways to distribute podcast

7.1 DISTRIBUTION OVER INTERNET

On popular way to distribute podcast for learners is uploading the audio file on Internet. There are many sound distribution software such as cloud based software as free or with cheap subscription price for users. On the other nowadays many schools and educational institutions have their online platforms. They need to consult with IT team to enable this feature on their website. One of the benefits of podcast is for uploading and downloading the file there is no need for Internet fast connection. Figure 7.1 shows sound cloud base software to distribute podcast.

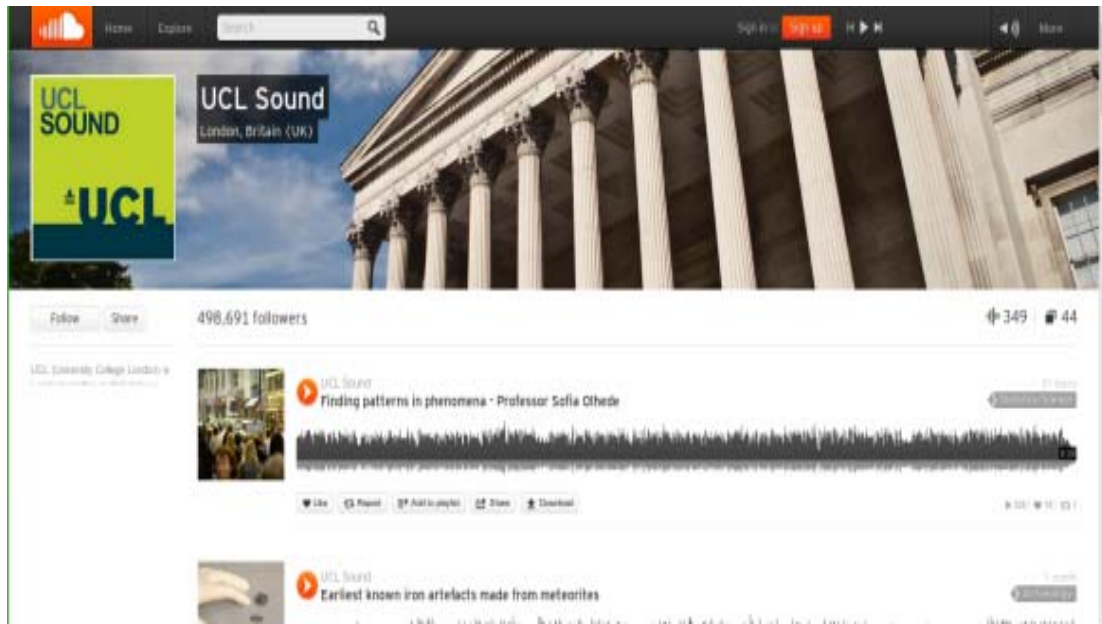


Figure 7.1 Sound cloud base software to distribute podcast

7.2 OFFLINE DISTRIBUTION

Another way to provide access to podcast for learners is distributing the files on CD and DVD. Almost all cheap computers, laptops have the CD player option and also there is possibility that learner can use cheap CD players. Moreover with technology development most of the electronics devices such as cellphone, smartphone, tablets, MP3 players, MP4 players and so on that have the ability to play the audio files. Figure 7.2 and figure 7.3 shows the example of portable CD player.



Figure 7.2 Example of portable CD player



Figure 7.3 Example of CD player

If there is no access to Internet, CD or DVD player teacher can use flash memory or stick memory to transfer the podcast to their students. Although mostly podcast don't need high capacity, there are many range of flash memory with high capacity. But teacher should give students instruction about taking care of flash regarding to sensitivity and small size. Figure 7.4 shows the example of flash memory.



Figure 7.4 Example of flash memory



Figure 7.5 Example of stick memory

However should be recommended before starting implementing podcast in class it's better that teacher evaluate if there students access to technology. Sometimes teachers need to use mix strategy if their students don't have equal access to technology. Therefore students can benefit technology in their learning process even with limited access to technology. (Bergmann & Sams, 2014).

8. CONCLUSION AND FUTURE STUDY

There are two major factors that influence on media usage in education, firstly its usability and the second one is personalization (Shim et al., 2007). Regarding to flexibility of producing of podcast such as recording, editing and delivering and because mostly teachers personalized the content based on their lesson plans, podcast can be one of the educational aid tool can be used in curriculum.

By using podcast students have the possibility to replay and pause their teacher as much as they need. They don't feel shame if they don't understand the lesson. They don't need others to explain to concepts for them. They can play and replay the podcast regarding to their paste. Furthermore podcast doesn't need high ICT skills for usage; with simple instruction students can use podcast on their personal devices or on available devices independently. Moreover podcast needs very basic equipment to record and to listen also it can be distributed easily on CD or cellphone or slow Internet connection. According to technology availability there is higher chance that students can benefit technology in their studying. This paper suggested the future study should focus on if podcast can improve student-teacher relationship.

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RECIPROCAL PEER OBSERVATION: A FRAMEWORK FOR DEVELOPING TEACHING AND LEARNING SKILLS IN TERTIARY ENABLING SCIENCE COURSES

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Abstract: Reciprocal review is a multi-dimensional activity which involves colleagues, students and an in-depth understanding of teaching and learning theoretical framework. It can be adopted to teach ourselves about effective teaching and learning practices. This paper describes the process used in a tertiary enabling maths course, which resulted in an increased emphasis on reflective teaching, enhanced student participation and introduction of integrated communication skills. Issues involved in teaching and learning tertiary enabling maths are identified and solutions to the identified issues are presented. This article demonstrates that reciprocal collegial review can be an important component of ongoing professional development for teaching and learning in tertiary enabling mathematics.

Key words: Reciprocal Peer Observation, Tertiary Enabling Maths, Reflective Teaching.

Introduction

This paper presents the process where reciprocal collegial review was adopted to educate ourselves about effective teaching and learning practice. We visited and observed each other's lecture sessions. I observed the lecture session of Farha for 50-minutes portion of a class on the unit Foundation Mathematics, upon; measurements. Farha observed one of my lecture sessions on the unit Foundation Mathematics, upon; algebra. She observed the lecture delivery for 50 minutes and presented critical feedback on my student's surface and deep learning oriented towards their critical and imaginative thinking.

The critical feedback provided by us was found to be congruent with the problems suggested by Ramsden (2003) and the three basic teaching and learning approaches suggested by Biggs (1999): 'teacher-directed, peer-directed and self-directed'. Ramsden et al (2008) noticed that the three approaches proposed by Biggs were in a different category from the surface and deep learning model. However, this paper will link the solutions suggested to issues raised by colleagues in a discussion based on surface and deep learning with respect to the teacher-directed, peer-directed and self-directed teaching and learning approaches.

In this paper, critical issues indicated by colleagues are listed with reference to the problems specified by Ramsden et al. (2008) specifically for the small groups, which are:

- i) Teacher deliver a one way lecture, not a mutual dialogue.
- ii) It is difficult to motivate the students to contribute; they are hesitant to discuss the key issues in the class with each other.
- iii) Students do not read the material before the lecture.
- iv) Students expect solutions to the problems to come from the lecturer and are reluctant to discuss the issues in the class.

Discussion on the strategies associated with the teaching and learning to solve the issues and develop professional lecturing skills adopted from literature is also presented.

Issues: Observations

Observed Session 1: Measurements

I attended Nawaz's lecture on the unit Foundation Mathematics, upon; measurements. During the portion of the class attended I looked for evidence to answer each of the three critical questions (Biggs, 1999 and Ramsden, 2003) and recorded the evidence along with suggestions of how Nawaz could move towards the desired states embedded in his questions. I sat in the back row of the lecture theatre in order to have a full view of the class to observe the students' activities.

The lecture room was big enough for 40 students; about 25 students were present in the lecture. The lecture room was designed like a rectangle where the stage was very open with lots of moving space. The students sat predominately at the front of the lecture room and were well scattered in the three portions of the class room. Farha stood behind a dais operating a computer to move through PowerPoint slides that were projected onto a large screen behind her. She was observed to be static in her position though there was space to move in the class room.

The performances of understanding (Biggs, 2003), was considered as a fundamental instrument in this exercise. Following points were noticed during Farha's lecture that could be considered to improve the performances of understanding of the students:

- i) Nawaz was very relaxed and composed for the lecture, but she could not project it towards the students to pass that relaxed and calm attitude to them.
- ii) Nawaz's voice was clear and audible for all students in the lecture.
- iii) Nawaz realised that she had a strong Asian accent and hence tactically she spoke slowly, though some of her sentences became quite long and by the end of the sentence some students could not keep up with the communication.
- iv) Nawaz avoided any slang but could not resist using some Australian words which may have confused some international students.
- v) In the big lecture room with the students seated wide spread she maintained a good eye contact and gave the message that she was in touch with each student. If Farha maintained the eye contact by presenting flexibility and moving around the class, then the student would have felt more relaxed and progressed with their performances of understanding.

In short, Nawaz's lecture was a good session of passing knowledge to the students and she succeeded in creating a communication relationship with her students. However, by injecting some relaxation in the class atmosphere he would have been able to make the students more confident to participate and reach the 'relational' outcome of SOLO taxonomy pointed out by Biggs and Collins (1982), and Approach C from the teaching approaches presented by Trigwell, Prosser and Waterhouse (1999).

It was observed that Nawaz wanted to take the students ahead of the slides and discuss the practical work, but whenever he posed a basic question about the concepts 'on the slide' the students became quite. He aimed to achieve the Approach C from Trigwell, Prosser and Waterhouse (1999), or at least the multistructural outcome of the SOLO taxonomy. But the students were not willing, or not prepared, or not motivated to go on to that level and they kept the lecture at Approach B with a unistructural outcome respectively.

Regarding the motivating factor, Nawaz could move around the class and illustrate flexibility in her attitude so that students could feel encouraged to throw in their ideas and contribute in the class. It was observed that the students were nervous or scared to say something assuming that they might be wrong. When Nawaz asked questions which he used as an effective tool to motivate the students, a sudden pause was observed. Then he had to rely on some specific few students who were confident to give their answers. Nawaz received all answers positively and provided productive feedback, even if the answers were distant from the expected response. It is advised that Nawaz could create a more personalised atmosphere in the class where students could see him more approachable.

Nawaz offered full support to the students who were participating and sometimes it felt as if there was a discussion among a class within the class. He tried to bring other students in the discussion and even directed his questions face-to-face towards the 'non-speakers' but they chose silence and Nawaz had to go back to the 'speakers' to continue with the delivery and flow of the lecture. Then he would go back to his presentation and

explain the topics with examples to improve the thinking skills of the students. But the lack of participation did not provide any valid evidence of this happening.

Observed Session 2: Trinometry

Nawaz observed one of my lecture sessions on the unit 'Foundation Mathematics' upon; algebra. He observed the lecture delivery for 50 minutes and presented critical feedback on my student's surface and deep learning oriented towards their critical and imaginative thinking. Apparently, there was similarity between the problems identified by Ramsden (2008) and the issues raised by Nawaz. The issues raised by Nawaz based on his observation of the teaching session on algebra are as follows:

- i) Nawaz observed that I was lecturing about the basic concepts of algebra to prepare the students for more complex and applicable real world problems. In Nawaz's observations my pedagogy was similar to Approach B described by Trigwell, Prosser and Waterhouse (1999), or the uni-structural outcome in the SOLO taxonomy pioneered by Biggs and Collins (1982), further illustrated by Biggs and Tang (2007).
- ii) Nawaz reported that I had to spend more time explaining the background and foundation of each topic since most students had not read the lectures' study material before the class. Reason for these laps in reading the study material was the distribution of the study material. Though Power point slides and part of study material was on Learnline site and was available in the form of a study guide too. But some practice questions were (outsourced) on other mathematical portals and websites. Moreover, I observed the lack of coherence in the material linked to the recommended text books. Hence I had to redesign the slides to cover the gap between the various study resources.
- iii) Students were generally hesitant to talk in the class. I was asking them many conceptual questions to assess their level of understanding of the topic. The students avoided debate among them and let me explain the topics and answer the questions. Farha mentioned, I was floating the questions throughout the class and received some answers. I eventually acknowledged all answers and then gave my version of the right answer without saying who was right and who was wrong. Farha also thought that the lecture room was not of appropriate size as compared to the number of students. Bigger room was needed while available room was not sufficient to provide a nice environment for teaching and learning.
- iv) Nawaz in his feedback pointed out one student, sitting in the front row, apparently dominated the class. Nawaz thought that when I asked any question, this student was quick to respond, even if he did not know the real answer. There could be a possibility that other students did not contribute since they did not want to counter or challenge his response. I had to realise that as he was among the very few vocal students in the class, her willingness to respond could be used as an ice breaker and to motivate the class to converse and generate different ideas and thoughts regarding the same topic. This point leads to another issue encountered in teaching in the class and that is the seating arrangement of the students. As flagged earlier, the Orange 4, level 2 in a small room, probably did not facilitate the learning practice of the students (McInerney & Liem, 2008). Small room was congested and students' self-selected seating arrangements, generally positioning them toward the back of the room, was not conducive to effective communication with me or with each other during the lectures.
- v) The above mentioned issues from Nawaz are in line with the last problem suggested by Ramsden (2008), i.e., students expect solutions to the problems to come from the lecturer and are reluctant to discuss the issues in the class.
- vi) The students developed a feeling that they could conveniently sit in the class without preparing and participating. Probably I was fulfilling their hope that if they were silent then I would come up with the answer, almost assuming that it was part of my job as the lecturer (Biggs & Tang, 2007; Day, 2000).

Solutions: Suggestions for Improvement

Based on contemporary literature on teaching and learning, the following solutions are suggested to help address issues about our teaching.

- i) In order to teach more effectively the basic concepts of algebra and measurements to make the lecture more structured and deliverable, we adopted the advice from literature suggesting linking the objectives of the lecture with some tasks for the students that would motivate them to be prepared before a lecture (Biggs, 1999; Trigwell et al., 1999). We decided to use the on-line teaching supports in Learnline to inform the students about the material to be discussed in the upcoming lecture. We posted a brief activity on the 'Discussion Board' in Learnline connected to the subject. For example, before the 'Volume and area calculations' lecture we posted an activity asking students to login to the learnline watch the youtube recorded lecture for relevant topic and complete the worksheet attached. For this activity students had to read the relevant chapters of the study guide and apply the knowledge. Few students posted their thoughts on Learnline and we gave some constructive feedback that motivated other students who started working on the activity and posted their online solutions. Regular monitoring of their performance improved their involvement and quality of the work (Biggs & Tang, 2007).
- ii) There are many models presented in the literature that suggest various approaches to improve the interaction of students in a classroom. However, we found that the discussion on students' surface and deep learning (Marton & Saljo, 1976) leading to their critical and imaginative thinking (Dearing, 1997; Gokhale, 1995) was the most effective choice to improve interaction. Moreover, since our students were learning Mathematical concepts, we thought they should be encouraged to have deep learning and be creative and critical in their observations to be successful in solving real world problems followed the strategy of using more examples (Biggs, 1999; Jones, 1978). We tried to make the material more interesting by doubling the number of examples linked to the topic. Another suggestion from Jones (1978) that we abided by was the assumption that we were sitting among our students in the class. This assumption enabled us to see ourselves sitting among the students; so we could set the pitch and tone of our voice and connect the topic with practical examples and the real world problems. We would also assess our own needs and preferences as a student from a lecture and lecturer, then while teaching we would endeavour to fulfil those needs and preferences. In order to enhance the class participation of the students, rather than only floating questions, we started to ask students specifically to answer the questions. Before implementing this idea, we made sure that we knew the first names of all our students. Then we started a discussion and asked a question to assess the background knowledge of the students, or their pre-class reading, then we would not say: "can any body answer this question". we would pinpoint at a student 'James or Muhiza' to discuss their thoughts related to the question or the topic. We would keep acknowledging the responses and continued to ask the question from various students until we thought a saturation of the ideas was achieved. At that point, we would present our concluding remarks and explain the topic linking our discussion to all answers deliberated by the students.
- iii) The above solution elaborated how we improved the students' participation and contribution in the lectures. We re-strategise the approach to inspire them to be ready and prepared before coming to our lectures. This plan was useful to improve the peer review among the students during the individual class presentations (Hutchings & Shulman, 1999). In earlier tutorials students didn't respond to the solutions by individual students, they all waited for us to give the feedback after each worked solutions. Based on the literature we changed our approach and asked the students to assess the solutions of their own colleagues (Biggs & Tang, 2007; Day, 2000; Hutchings, 1996). This exercise helped the students to broaden their understanding of Mathematical concepts regarding shapes and algebra. This practice also encouraged competition among the students to perform better as they knew the assessment would be thoroughly and objectively conducted by their own colleagues and friends.
- iv) The next issue we had to deal with was the academic effectiveness of the material provided with the unit. The study material consisted study guide, recorded lectures, revision questions and practice websites. All this material created confusion in the minds of the students due to its incoherence. The literature was

consulted and some ideas emerged to help the students in compiling and setting the material in an order most suitable for their learning (McInerney & Liem, 2008; Trigwell et al., 1999; Gokhale, 1995). Following the strategies presented by these authors we went back to the desired outcomes or study objectives of this unit. Then we started to link each objective with various study material and practice question used for this unit by dividing the unit into topics and weekly learning material.

- v) Since Nawaz had pointed out the dominance of a single student in the class, I tried to keep a balance among all students and their participation in the lecture. I tried to use interactive engagement of students (Hake, 1998) by involving them in classroom activities. Adhering to the reflections of Biggs (1999) and Gokhale (1995), I reset the class atmosphere by changing the position of the tables and discipline by calling their names for involvement. After further observations I noted that this particular student used to speak up without raising her hands assuming that he had the best opinions. I made an announcement in the class that all students are equal, I facilitate all students to speak and participate in the lecture and it is my job to ensure that each student gets equal opportunity to contribute. Hence, I declared that when I ask a question of the students, or if any student has a question for me, then before speaking up the student or students will have to raise their hands. Then if I saw more than one hand being raised then I could choose which student should speak first. It also gave me more authority in managing the flow of discussion among the students since I knew what perspectives would be presented by various students. The particular student tried to say something whenever she got a chance, but I insisted upon her not to speak without raising her hand, which eventually became a norm in my lecture sessions. In view of the concern with class seating; the classical (Jones, 1978; Marton & Saljo, 1976) and modern literature (McInerney & Liem, 2008) was studied. The geographic structure of the room did not allow the students to sit in a semi-circle or a half square, so I had arranged a bigger room and ask students to move towards the front seats. Shifting in a bigger room has created a comfortable environment in the classroom. I also informed the students that sitting in the front seats will improve the communication between me and them, and it will increase the opportunities for equal contribution from the whole class.

- vi) Considering the problems with the structure and layout of unit content and the clutter of information on Learnline we endeavoured to transform this site to a more user friendly layout. This problem of information available in different sections or windows of a course website has been identified in the literature on online education (Peltier, Drago & Schibrowsky, 2003; Laurillard, 2002). One of the solutions suggested by these authors is to remove the clutter and collect the useful information in minimum space on the website. The suggestion from Biggs and Tang (2007) was also adopted to put ourselves in the place of our students when accessing the material. This strategy helped us to see the website as a student might see it so that we could finalise the material based on our requirements as the 'student'.

One major change that we brought into our learnline unit was to place all important material under one page 'Learning Materials' and in one space for a specific week, students often find this very helpful. This helped the students to access all the material for a specific week by minimum clicks on the learnline.

Conclusion

The visits and observations to each other's lectures provided more critical insights to the teaching and learning system prevailing in our lecture sessions. We have listed the identified problems and analysed them with reference to the literature. Then we found the solutions for these problems from the relevant literature, applied them in our lectures and have presented them in this paper. The practice of teaching and learning adopting reciprocal collegial review taught us to objectively identify the vital problems faced in teaching and learning, and their possible solutions. We strongly recommend this practice to improve the quality of teaching learning for better education.

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SECONDARY STUDENTS' PERCEPTIONS OF INFORMATION, COMMUNICATION AND TECHNOLOGY (ICT) USE IN PROMOTING SELF-DIRECTED LEARNING IN MALAYSIA

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Abstract: The purpose of this study was to identify secondary students' perceptions on the use of Information, Communication and Technology (ICT) in promoting students' self-directed learning in Malaysia. Survey design was used to gather quantitative data through the questionnaires. 100 students were chosen randomly as the samples from two private Secondary Schools in Selangor, Malaysia. SPSS V22.0 was used to analyze descriptive and inferential statistic. The findings showed that the use of ICT among students in Malaysia was familiar and it had promoted a high level of readiness in self-directed learning and established students' interactions with ICT, peers, and teacher. The findings also reported that there was a relationship between gender and the use of ICT and self-directed learning, the students from the urban areas also tended to be more self-directed in their learning compared to students from the rural areas. Further study should analyze the level of self-directed learning among secondary school students in the rural areas in Malaysia. The disparity between urban and rural areas in terms of facility and infrastructure is one important factor that needs to be studied.

Key Words: Self-Directed Learning; Information and Communication Technology; Secondary School; Malaysian Education.

INTRODUCTION

In this 21st century, the use of technology in education becomes a significant factor to achieve students' effective learning. Nash (2014) noted that to keep up with the demands of modern society in the information and technology era, the idea of self-directed learning which has been originated by Dewey is very significant to be applied in order to give freedom to students to come out with their intelligence in controlling their learning. In today's digital age, most students have started doing collaborative learning using numerous technology devices to promote self-directed learning skill (Cheung & Hew, 2015). They also stressed that the skill of self-directed learning is not only applicable for the students but also teachers who need to be knowledgeable to face the digital age. Therefore, teachers need to prepare the students for this kind of culture which stress on a collaboration, analyze things and solve a problem creatively by themselves.

The National Education Policy in Malaysia has stated about implementation of Primary School Standard Curriculum (KSSR) since 2011, it aims to nurture and develop the potential of students to create human capitals that are very creative, can think critically, innovative, have a right attitude and interpersonal skill as preparation to face the current challenges and 21st century learning environment (National Education Policy, 2012). One of the policies that have been written in NEP 2012 is to make sure that Information, Communication and Technology (ICT) is being used in teaching and learning at all schools in Malaysia.

Even more, Malaysia Education Blueprint 2013-2025 has been unveiled by Malaysian government and by the end of 2020, the Ministry will ensure all schools are expected to achieve the student knowledge on how to use ICT effectively in enhancing their learning performances. Then, self-directed learning could be the way to improve the teaching and learning style in using the ICT to move forward.

DEFINITION OF SELF-DIRECTED LEARNING

The term self-directed learning has diverse terms that describe the same thing. Candy (1987) identified at least 30 different terms that are used interchangeably by experts. Some of the terms include; autodidact, autonomous learning, independent learning, learner-controlled instruction, learner-directed instruction, non-traditional learning, open learning, participatory learning, self-directed learning, self-education, self-organized learning, self-planned learning, self-responsible learning, self-study and self-teaching and many other terms.

According to Annuar and Shaari (2014), self-directed learning is a process when the individuals evaluate their learning needs, formulates goals, choose and implement proper strategies and analyze learning outcome, and it also requires students to improve themselves and society. Students who develop a sense of responsibility for their own learning by mastering in academic content, critically thinking and analytically, and also effective in communication and collaboration, shows the self-directed learning (Onyon, 2012).

The history of self-directed learning begin at early 20th century and focused on the development of adult education but later researchers start think about children could possess intrinsic motivation to learn (Tan, Divaharan, Tan & Cheah, 2011). If any problem occurs, the children should make an attempts to seek knowledge and analyze it to solve the problem. Therefore, self-directed learning at first is a macro concept related to adult education then the recent researcher makes an improvement.

The most commonly used definition of self-directed learning is Knowles (1989). He described self-directed learning as “a process in which individuals take the initiative, with or without the help from others, in diagnosing their learning needs, formulating goals, identifying human and material resources, choosing and implementing appropriate learning strategies and evaluating learning outcomes” (p. 18). Meanwhile, Garrison (1997) and Oddi (1987) perceive self-directed learner is an entity that obtain a high degree of self-efficacy through intrinsic motivation and achieve the set goals with implementation of appropriate strategies while willing to face new challenges.

THE IMPORTANCE OF SELF-DIRECTED LEARNING

Tan, Divaharan, Tan and Cheah (2011) listed self-directed learning as a key component of 21st century skills that every student must possess in order to prepare them to face any incoming challenges in twenty-first century. Gibbon (2002) argued that self-directed learning is a natural process that happens to any individuals. Self-directed learning is not an inborn talent, but it is a skill that can be developed and taught with particular techniques (Wichadee, 2011; Cazan & Schiopca, 2014).

The theory of self-directed learning is derived from the principles of adult education where student expands their learning initiative, self-management, and motivation for learning (Hyland & Kranzow, 2012). However, self-directed learning not only depends on individual commitment but also it needs the support and encouragement from others (Institute for Employment Research, 2001). It also emphasized that “Learning itself is both an intensely personal activity and a quintessentially social process” (p. 1). Peckham (1995) asserted that self-managed learning is based on five principles: (1) People learn best from their experiences or others. (2) The way people learn things is different. (3) People need to learn different things. (4) To be best at learning things, people must see learning as an obligation and responsibility (5) People cannot be forced to learn.

From this point of view, self-directed learning only promotes autonomous learning for adults. So what about self-managed learning among kids and young people for instance students at primary and secondary school? Nor and Saeednia (2008) asserted that both adults and children share the same qualities of self-directed learning. The result of their study shows “self-directed learning is not solely for learning in adult years” (p. 565). They reiterated that even children at the age of nine years old were capable of self-directing their learning. The finding also showed that the children were able to demonstrate differing extents of self-discipline, curiosity, independence, persistence, goal orientation, responsibility, and enjoyment of their learning.

In the last decade, at undergraduate and graduate level, studies has shown a positive relationship between self-directed learning and students’ academic (Hyland & Kranzow, 2012). The studies involved both “on the ground” and “online” based learning and these two learning styles indicated the same trend. In their study, Cazan and Schiopca (2014) analyzed the relationship between self-directed learning, personality traits and academic achievement that involved 121 undergraduate students. The result of the study indicated that self-directed learning was correlated with personality traits. Other than that, the study also found that self-directed learning predicted students’ academic achievement. Meanwhile, Stubbe and Theunissen (2008) asserted that self-directed learning could change the student to be more strategic and efficient in learning the process. Students also could manage the way they learn and direct their educational choices.

LEVEL OF SELF-DIRECTED LEARNING

Despite individuals can be a self-directed learner, the degree of development of this skill is different since individuals have different learning motivation, self-efficacy, self-esteem, conscientiousness, openness to

experience and intelligence (Cazan & Schiopca, 2014). Therefore, teaching instructors or teachers must be thoroughly aware of this reality especially for primary school students. Teachers in primary or secondary school face the most challenging task of developing and promoting self-directed learning compare to teaching instructor at higher education level. This might be because higher education students are mature enough to set their learning objectives and have the ability to design their learning projects.

The concept of “proactive“ and “reactive” learner as described by Littlewood (1996) must be the basis for teachers to start promoting autonomous learning or self-directed learning for the students. According to him, proactive students can control and direct their learning, set the learning objectives, select learning methods and techniques and they also able to evaluate whether the learning objectives has been achieved. Meanwhile, the reactive student is a bit different. The teacher must support and encourage students’ autonomous learning by initiating and set the direction for the students so that they can set their learning goals and the way to achieve them. In line with Littlewood (1996), Snodin (2013) argued that students need to be guided and directed by the teachers to be an autonomous learner. Furthermore, he also suggested that the teacher can provide the students with appropriate ICT tools and also gives them opportunities to use and practice it.

Meanwhile, according to Gibbons (2002), there are five stages in self-directed learning that start from low degree of self-directed learning to the highest one.

Phase 1: Incidental self-directed learning: The occasional introduction of SDL activities into courses or programs that are otherwise teacher-directed.

Phase 2: Teaching students to think independently: Courses or programs that emphasize the personal pursuit of meaning through exploration, inquiry, problem solving and creative activity.

Phase 3: Self-managed learning: Courses or programs presented through learning guides that students complete independently.

Phase 4: Self-planned learning: Courses or programs in which students pursue course outcomes through activities they design themselves.

Phase 5: Self-directed learning: Courses or programs, in which students choose the outcomes, design their activities and pursue them in their way.

ICT USAGE AMONG SECONDARY SCHOOL STUDENTS IN MALAYSIA

According to Malaysia Education Blueprint 2013-2025, there are more than 6 billion Ringgit Malaysia (RM) has been spent by the Ministry of Education in supporting Information and Communication Technology (ICT) for the schools in Malaysia. The government expects that with the use of ICT in education, the students will be able to access a wider range of content that is more engaging and interactive on numerous Websites and enable them to learn the contents on their own paces or autonomously.

Studies have revealed various findings regarding ICT Skills and practice among secondary school students in Malaysia. For example, Umar and Jalil (2012) studied about secondary school students’ skills, practices and barriers in using ICT. They found that Malaysian students are at moderate level in term of using ICT for basic and internet application such as accessing and sharing information. In term of using the internet for communication skills, students are the proficient level. Meanwhile, students are at the lowest level in using advanced ICT application.

The study also found gender (male and female) has no significant difference in terms of the students’ level of ICT skills. Meanwhile, in term of geographical factor, there is a wide gap of students’ ICT skills between students from urban areas with students from rural areas. In other word, there is a significant difference between urban school students with rural school students in using ICT. In line with Umar and Jalil study but from a different context, Aesaert and Braak (2015) studied the relationship between gender and students’ socio-economic status toward students’ ICT competences. The study found that students, in general have difficulties in higher order ICT competence. However, in term of gender, unlike Umar and Jalil’s finding, the study showed that female has better technical ICT skills and higher order ICT competences compare to male students.

THE RELATIONSHIP BETWEEN ICT UTILIZATION AND SELF-DIRECTED LEARNING

The latest trend in teaching and learning process, ICT literate skill has made a vital shift whereas the approach in the classroom has changed from teacher-direction toward student-direction learning. It means that teachers no longer a sole and primary source of information and knowledge in the classroom. The style of learning has changed from a traditional learning approach toward another way of learning by utilizing ICT as the complementary tools to back up and help the teacher in directing teaching and learning the process and one of the style is by giving freedom to students in choosing their way of learning by having a self-directed learning using ICT. Nowadays, teachers and students are encouraged to use ICT to increase their performance and help teachers and students to reach their full potential (McLaughlin & Lee, 2007).

However, as mention before the about culture of people might influence the way people react to issue and to give an opinion. In this study, the researcher wants to know the degree of effectiveness in using ICT in promoting self-directed learning and ways to encourage students to change to this new style of learning.

The utilization of ICT in learning process has made the process of learning is limitless and borderless and enhances student learning (Hyland & Kranzow, 2012). By using ICT, the learning process by accessing various information and various websites can happen everywhere and anywhere even without the present of teacher (Stubbe & Theunissen, 2008). Chan (2001) proposed two principles to stimulate autonomous learning through classroom activity. First, classroom activity should promote equity among students by involving all students in various ways and secondly there should be a full range of learning conditions and classroom activities to boost and stimulate students' interest and motivation.

According to Choo (2007) ICT usage enhances students' innovative and creative skills in dealing with their daily task as a school student. When the process of learning no longer limited in the classroom with the teacher stand before the student and lecturing the lesson for them, the students are able to employ various learning method and approach that fit and suitable for each of them. Moreover, she stated "Such traditional practice faces the danger of breeding a group of students who lack the flexibility to function well or transfer learning to the competitive workplace" (p. 186). Nowadays, with the use of ICTs students can access learning materials posted by their teacher in online learning platform. Teachers can ask the student to read the materials or asked them to respond to it or asked them to make their reflection papers regarding the materials given to them.

The use of ICT in learning process enables the student to learn at their home, or everywhere else outside classroom setting. This means that, the students have learning flexibility in which they do not have in the classroom (Snodin, 2013). The flexibility of learning gives students more option about how they learn.

With the new way of teaching and learning, both teachers and students are expected to be independent or become an autonomous learner. With the physical absence of the teacher, students were encouraged to be able to overcome their problems through collaborative learning with the help of ICT tools (Dlaska, 2002). Through self-directed learning, the student can develop their way of learning that fit with their needs. Both teacher and student also can be more adaptive toward teaching and learning which mean that teacher and student have flexibility in teaching and learning (Snodin, 2013). For instance, the teacher has the flexibility in designing their classroom practice and selecting their teaching content by using ICT tools. While the student has the flexibility in their learning such as finding the best way of learning that fit and suitable for them, looking for learning content from various sources and so forth.

Murray, Ni Hourigan, Jeanneau and Chappell (2005) argued that ICT empower and motivate students to learn since it provides a natural context for students' autonomy. Through this learning approach, teachers and students also able to promote lifelong learn to support their future career and development. Moreover, the findings of the study conducted by de Sousa, Sevilla-Pavón and Seiz-Ortiz (2012) revealed that the use of ICT promotes changes in attitudes, behavior and values and also in cognitive and perceptive processes.

THEORIES AND THE CONCEPTUAL FRAMEWORK OF STUDY

In order to examine the effects of using ICT in promoting students' self-directed learning, Self-Directed Learning (SDL) theory was used as a theoretical framework of this study. Gibbons (2002) stated that the theory was based on the self-directed learning and students' readiness. The theory shows that the small level of self-direction,

which is incidental self-directed learning, is the only basic introduction of SDL activities and mostly is still teacher-direction. Then it goes to one phase to other phases, and it explains the different degree with various practices. It also changes from teacher direction to self-direction where the students do things and evaluate by themselves. Hence, there are three important aspects involved in self-directed learning, namely: ownership of learning, self-management and self-monitoring, and extension of learning.

Based on the theories, this study can conclude with a conceptual theory as below (Figure 2). The conceptual theory shows that students who practice a self-directed learning with the use of information, communication and technology can provide excellent outcomes in teaching and learning the process to face the challenges of the 21st-century world.

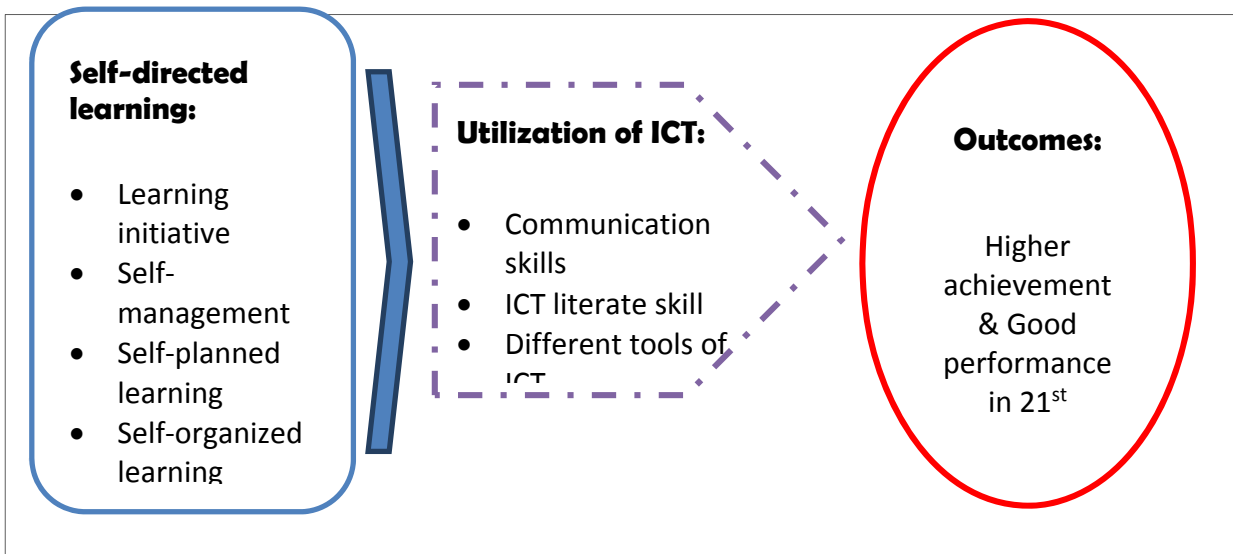


Figure 2. Conceptual framework of the study

RESEARCH OBJECTIVES

The objectives of this study were to identify students' perceptions with ICT tools in the learning activities and to measure the level of self-directed learning readiness of students. Thus, to determine whether students' interaction in using ICT can enhance students' self-directed learning. The last, to identify the relationship of students' demographic values such as gender and place of origin (urban and rural) with the use of ICT in promoting self-directed learning.

RESEARCH QUESTIONS

This study addresses the following research questions:

1. How familiar are the students with ICT tools in learning activities?
2. What is the level of students' self-directed learning readiness?
3. Does the students' interaction with ICT tools can enhance students' self-directed learning?
4. Is there any significance relationship between students' demographic values such as gender and place of origin (urban and rural) with the use of ICT in promoting self-directed learning?

RESEARCH HYPOTHESIS

With the guide of theoretical framework as well as literature review, hence the research hypothesis of this study will be designed as follows:

1. H1: There is no relationship between gender and students' use of ICT and self-directed learning.
2. H2: There is no relationship between students' place of origin (urban and rural) with the use of ICT and self-directed learning.

SIGNIFICANCE OF THE STUDY

By identifying the effects of using ICT in promoting students' self-directed learning, hopefully the members of higher educational institution (i.e., faculty, student affairs staff, administrative staff) can take further action such as making improvement in area that need to be improved or provide all need such as facilities, syllabus and other means that support and enhance students' self-directed learning using ICT tools. Then, because there is a significant gap in research regarding implementation of self-directed learning for secondary in private school as compared to primary or secondary students from public school, this study tries to fill the gap of knowledge in this area especially in private school. This study expected to be a useful source for any further researchers who want to study the same issue and hopefully this research becomes a helpful information and valuable reference for the next research.

METHODOLOGY

The study examined the effect of using ICT in promoting students' self-directed learning. However, to ascertain this fact, the researchers conducted a quantitative research approach in the research activity. Thus, a survey design was used to measure students' self-directed learning insights with ICT.

Research Design

The design of this study was based on quantitative approach which was used to determine the effect of using ICT in promoting students' self-directed learning. A survey research provided a quantitative explanation of trends, levels, interactions, and relationship by studying the sample of population. A cross-sectional survey was used to enable the researchers in order to generalize from sample to the population.

Samples

The samples of study consisted of data from two private Secondary Schools in Selangor. Although the total population of these two schools were 550 students, the researchers only selected 100 respondents randomly. The respondents were chosen from varies based on their academic levels in secondary school which varied from year 1 to year 5 respectively. This was done in order to get a greater number of responses from the participant population.

Instruments

This questionnaire was constructed by researchers consisted of 22 items in total. It was a cross-sectional survey partly developed and modified by the researcher and partly adopted from Timothy, Chee, Beng, Sing, Ling, Li and Mun (2010). Moreover, the questionnaire distributed by hand to the respondents. The respondents were given two days to complete the questionnaires and collected individually. Participants were requested to read the instructions before answering the questions. Then, the respondents completed the questionnaire consisted of 22 items based on five types of Likert scale from Strongly disagree to Strongly agree (1: Strongly disagree, 2: Disagree, 3: Neither Agree nor disagree, 4: Agree, 5: Strongly Agree).

These items were related to student self-directed learning with ICT tools as followed: Demographic data of the respondents, students' familiarities with ICT tools in learning activities, the level of students' self-directed learning readiness and students' interaction with ICT tools to enhance students' self-directed learning

The researchers distributed the questionnaires among 100 students in two private secondary schools around Selangor. The entire participants completed the questionnaires on the speculated time. All the participants volunteered themselves in answering the questionnaires and their responses were kept confidential and anonymous.

Data analysis

Data from the surveys were received by the researchers and SPSS V22.0 was used to analyze the data by descriptive statistic to get the percentage, Mean (M), and Standard Deviation (SD). The use of descriptive analysis in order to get the highest responds of items. Then, to find the significant relationship between students' self-directed learning and the use of ICT and their demographic values by using correlation test. In addition, researcher used an independent samples t-test as inferential statistic to see the relationship between two values or the relationship between students' demographic values such as gender and place of origin (urban and rural) with the use of ICT in promoting self-directed learning.

RESEARCH FINDINGS

Analysis of Descriptive statistics

The data were analyzed using various descriptive statistics as presented in numerous tables. The demographic data of the respondents was retrieved from section 1 of the survey questionnaire used in this study. It included information of gender and place of origin. The following subsections elaborate on the frequency and percentage of the demographic data. The report showed that there were 43% male and 57% female respondents of this study.

Table 1.

Distribution of Male and Female Respondents (N=100)

Category	Frequency	Percentage	Mean	Std Deviation
Male	43	43%	1.45	.688
Female	57	57%	2.90	1.411
Total	100	100%		

Likewise, the following Table 2 summarizes the majority of the respondents' places of origin was from urban areas with a total of 85% and followed by the respondents from the rural areas with 15%.

Table 2.

Distribution of Place of Origin of the Respondents (N=100)

Category	Frequency	Percentage	Mean	Std Deviation
Urban	85	85%	3.45	1.368
Rural	15	15%	2.90	1.640
Total	100	100%		

Apart from the demographical analysis, this study also aimed to provide the answer of research question 1, "How familiar are the students with ICT tools in learning activities?"

It showed that item A1, A2 and A3 have a high Mean value ($M = 4.79$) and it indicates that majority of students were familiar with ICT tools. In terms of students' level of ICT competency, majority of students believed that their competencies were at intermediate level (A5), it showed that 70% ($M = 3.49$) students acknowledged that their ICT competency skills were at the middle level or intermediate. It is supported with item A4 which was reported that only 7% of students were in basic level and none of student was in advance or expert level (A6).

Generally, the overall report of high mean value which is above 4.00 shows that the students were familiar with ICT tools in their learning activities and they have intermediate level of ICT skill. Therefore, the researchers conclude that the use of ICT among students in two private Secondary Schools in Selangor Malaysia was

familiar. The following table 3 summarizes the distribution of Percentage, Mean and Standard Deviation (SD) of the students' familiarity with ICT tools.

Table 3.

The summary distribution of Percentage, Mean and Standard Deviation (SD) of the students' familiarity with ICT tools (N = 100)

ITEMS Learning with ICT tools	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	SD
A1: I am familiar with ICT tools	0%	0%	0%	21%	79%	4.79	.409
A2: I know how to operate and use basic ICT tools	0%	0%	0%	21%	79%	4.79	.409
A3: I know how to connect to internet	0%	0%	0%	24%	76%	4.79	.429
A4: My ICT competency is at beginner level	35%	3%	55%	7%	0%	1.82	.796
A5: My ICT competency is at intermediate level	10%	0%	20%	51%	19%	3.49	1.283
A6: My ICT competency is at expert level	43%	57%	0%	0%	0%	1.57	.498

Even more, the following subsection provides the answer of the research question "What is the level of students' self-directed learning readiness?"

This report shows that items B1, B3, B5 and B7 have the highest mean score above 4. In item B1 reported that all students ($M = 4.47$) loved to learn and item B5 reported that 76% ($M = 4.11$) of students responded positively that difficult study did not bother them in learning. Additionally, item B3 reported that 71% ($M = 4.05$) of students responded that they could learn the subjects on their own paces and item B7 reported that the Mean score was 4.02 which means that students had constructed their awareness in self-directed learning. In this case, students believed that no one was responsible for their studies except themselves.

Looking at item B2, B6 and B8, there were negative responds among the respondents. In item B2 students stated "I know what I want to learn", majority of 58% fairly agreed while 31% fairly disagreed that they had known what they wanted to learn. Also, as indicated in item B6, "If there is something I have decided to learn, I can find time for it, no matter how busy I am" 39% of students responded fairly disagree, 30% strongly disagree and only 20% agree with the statement. Lastly, item B8 stated that "If I discover a need for information that I don't have, I know where to go to get it" majority of 57% strongly disagree and 43% fairly disagree with that statement. Based on this the researcher can deduce that respondents shows a high level of readiness in self-directed learning which answer the second research question of the study.

The following Table 4 summarizes the Percentage, Mean and Standard Deviation of the students' readiness Self-directed learning.

Table 4.

The summary distribution of Percentage, Mean and Standard Deviation (SD) of the students' readiness Self-directed learning

ITEMS Self-directed learning readiness	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	SD
B1: I love to learn	0%	0%	0%	54%	46%	4.46	.501
B2: I know what I want to learn	0%	31%	58%	11%	0%	2.80	.620
B3: I can learn thing on my own better than most people	0%	0%	29%	37%	34%	4.05	.796
B5: Difficult study doesn't bother me if I'm interested in something	0%	0%	24%	41%	35%	4.11	.764
B6: If there is something I have decided to learn, I can find time for it, no matter how busy I am	30%	39%	31%	0%	0%	2.01	.785
B7: No one but me is truly responsible for what I learn	0%	0%	20%	58%	22%	4.02	.651
B8: If I discover a need for information that I don't have, I know where to go to get it	43%	57%	0%	0%	0%	1.57	.498

Furthermore, the following subsection provides the answers to the research question “Does the students’ interaction with ICT tools can enhance students’ self-directed learning?”

This section shows the analysis on the students’ interaction with ICT tools, it includes the Distribution of Percentage, Mean and Standard Deviation. It could be seen from 4 items of this study showed the highest Mean score which means that students have good interactions with ICT in enhancing their self-directed learning skills. To enumerate, item C13 reported that 83% ($M = 4.28$) of students whether agreed or strong agreed that they used the computer to work with information for their learning. It means that students used technology tool for searching learning sources or information in relation to their learning activities. Then, item 17 reported that 79% ($M = 4.20$) of students could interact with their friends to discuss subject matters outside of class hour. It showed that this by using ICT students could establish interaction with peers and teacher inspite after the class hours. Item 14 reported that 76% ($M = 4.17$) of students could practice their learning by playing computer games. This activity showed that playing students could interact with the content of learning through educative computer games. Additionally, item 9 reported that 72% ($M = 4.03$) of students acknowledged that by interacting with technology tools, they could figure out the ways to learn when they want to learn something.

In addition, item C12, C15 and C16 reported that the Means (M) distribution was above 3 and it showed that students’ perceptions were moderate and slightly positive. For example, item C12 reported that 64% ($M = 3.80$) of students found more information on the Internet to help them understand the lessons better. Also, item C16 reported that 64% ($M = 3.80$) of students used the computer to get ideas from different websites and people to learn more about a topic. Again, item 15 showed that 66% ($M = 3.99$) used the computer to become better at a skill that they interested in.

However, item C10 reported that only 11% ($M = 1.85$) of students used the technology tools to interact with their teachers outside the class for asking questions related to the lessons. Also, item 11 reported that only 27% ($M = 2.49$) of students used the computer to share their thoughts and ideas about schoolwork.

This analysis shows that item C9, C13, C14 and C17 a have high mean value that is above 4.00, this show that the student demonstrated a high attitude towards interaction with ICT tools in their learning. This answer the third research questions that the students’ interact with ICT tools that enhance them towards self-directed

learning. The following Table 5 summarizes the Percentage, Mean and Standard Deviation of the students' interaction with ICT tools.

Table 5.

The summary distribution of Percentage, Mean and Standard Deviation of the students' interaction with ICT tools

ITEMS Students' interaction with ICT tools	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	S.D
C9: If there is something I want to learn, I can figure out a way to learn it	0%	0%	28%	25%	47%	4.03	.731
C10: I go online to ask my teachers questions on my lessons when I am not in school.	46%	34%	9%	11%	0%	1.85	.989
C11: I use the computer to share my thoughts and ideas about my schoolwork.	23%	32%	18%	27%	0%	2.49	1.124
C12: I find out more information on the Internet to help me understand my lessons better.	0%	0%	36%	48%	16%	3.80	.696
C13: I use the computer to work with information for my learning.	0%)	0%	17%	38%	45%	4.28	.740
C14: I practice skills that I learned in school through playing computer games.	0%	0%	24%	35%	41%	4.17	.792
C15: I use the computer to become better at a skill that I am interested in.	0%	0%	34%	27%	39%	3.99	.859
C16: I use the computer to get ideas from different websites and people to learn more about a topic.	0%	0%	36%	48%	16%	3.80	.696
C17: I can interact with my friends to discuss subject matters outside of class hour.	0%	0%	21%	38%	41%	4.20	.765

Analysis of Inferential Statistics

Inferential analysis examines the relationship between two values or the relationship between students' gender and place of origin with the use of ICT in promoting self-directed learning. Therefore, this analysis tries to provide the answer of the research questions: "Is there any significance relationship between students' demographic values such as gender and place of origin (urban and rural) with the use of ICT in promoting self-directed learning?" Hence, there were two hypotheses examined in this study as followed.

Hypothesis 1:

Null hypothesis, H_0 : There is no relationship between gender and students' use of ICT and self-directed learning

$H_0: \mu \text{ male} = \mu \text{ female}$

Alternate hypothesis, H_1 : There is relationship between gender and students' use of ICT and self-directed learning

$H_1: \mu \text{ male} > \mu \text{ female}$

From the independent t-test Means, the results showed that the use of ICT and self-directed learning of the male ($M = 1.45$, $SD = .688$) was less than the use of ICT and self-directed learning of the female ($M = 2.90$, $SD = 1.411$) was significant, $t = -3.198$, $d.f. = 30$, $p = .003$. Therefore, since the $p < .05$ so null hypothesis was rejected and the Means of the two groups were significantly different from each other.

Thus, the data provided sufficient evidence to conclude that the use of ICT of female were adequate in self-directed learning than the male. Therefore, there was a relationship between gender and students' use of ICT and self-directed learning. In other words, female students had much more self-directed learning skills when using ICT rather than the male. The following table 6 summarizes the relationship between gender and students' use of ICT and self-directed learning.

Table 6.

The relationship between gender and students' use of ICT and self-directed learning

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Learning with ICT tools	Male	43	1.45	.688	.207
	Female	57	2.90	1.411	.308

Independent Samples Test										
		Levene's Test for Equality of Variances		The t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Learning with ICT tools	Equal variances assumed	10.441	.003	-3.198	30	.003	-1.450	.453	-2.376	-.524
	Equal variances not assumed			-3.907	29.938	.000	-1.450	.371	-2.208	-.692

Hypothesis 2:

Null hypothesis, H_0 : There is no relationship between students' place of origin (urban and rural) with the use of ICT and self-directed learning.

$H_0: \mu_{urban} = \mu_{rural}$

The alternate hypothesis, H_1 : There is a relationship between pupils' place of origin (urban and rural) with the use of ICT and self-directed learning.

$H_1: \mu_{urban} > \mu_{rural}$

The results shows in the following Table 5 that self-directed learning readiness among the urban ($M = 3.45$, $SD = 1.368$) was higher than that of the rural ($M = 2.90$, $SD = 1.640$), $t = .950$, $d.f. = 30$, $p = .047$. Hence, since the $p < .05$ so null hypothesis was rejected and the means of the two groups were significantly different from each other. So, the conclusion is that students from urban areas tend be more self-directed in their learning compare to students from rural areas in the class.

Table 7

The relationship between between pupils' place of origin (urban and rural) with the use of ICT and self-directed learning

Group Statistics						
		Gender	N	Mean	Std. Deviation	Std. Error Mean
Self-directed learning readiness	urban		85	3.45	1.368	.413
	rural		15	2.90	1.640	.358

Independent Samples Test										
		Levene's Test for Equality of Variances		The t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Self-directed learning readiness	Equal variances assumed	4.290	.047	.950	30	.350	.550	.579	-.632	1.732
	Equal variances not assumed			1.007	23.936	.324	.550	.546	-.578	1.677

DISCUSSION

The results of the study have revealed the level of students' competency in using ICT tools. In line with previous study also at the same context conducted by Umar and Jalil (2012), the study found that the level of secondary school students' in Malaysia were at intermediate level in term of using ICT for basic and internet application such as accessing and sharing information. Moreover, the study also found that the majority of the students were at a low level in term of using advanced ICT application.

Furthermore, the result of the study also showed that the level of students' self-directed learning readiness was at a low level based on Gibson's stages of self-directed learning readiness. In contrary with Douglass and Morris (2012) finding, this study concluded that the participants were categorized as reactive learners as described by Littlewood (1996). In term of time management, participants also indicated that they were still having difficulties to set the time to learn what they have decided to learn. Participants also did not know where to get needed information. Meanwhile, Douglass and Morris (2012) findings of their study that investigated students' perceptions in promoting self-directed learning, found that students must be proactive students, have good time management and set personal goals in order to succeed.

Littlewood (1996) defined reactive learners as learners that need teachers' support and encouragement to promote autonomous learning by setting direction for the learners, so that they can set their learning goals and decide the way to achieve them. Therefore, the finding of this study indicated that the role of teachers was imperative to support and facilitate students to be self-directed learners.

By relying on Gibson's model of five stages in self-directed learning, from the finding the writer concluded that the level of self-directed learning of secondary school students was at incidental self-directed learning. At this point, students need teachers' guidance and direction to promote self-directed learning. The degree of students' dependent on teachers to direct learning at this phase was high.

Moreover, in term of whether students' interaction with ICT can promote students' self-directed learning, the finding indicated that students showed self-directed learning values when they used ICT to support their learning. In line with Choo (2007) which stated that ICT usage can enhance students' innovative and creative skills in dealing with their daily task as a school student, the finding of this study also found the same phenomena. The students used ICT tools such as computer and the internet to bolster up their learning. ICT utilization helps students figure out the way to learn something they are interested in.

ICT usage also helped them to get ideas from various sources such as websites and interact with people virtually by using computer and the internet. ICT usage enables the students to interact with their friends to discuss subject matters outside of class hour as well. Overall, the finding of this study indicated that students' ICT utilization promote and stimulate students to become more self-directed and autonomous in their learning.

The findings of this study share the same findings with Snodin (2013), Murray, Ni Hourigan, Jeanneau, and Chappell (2005) and Broke (2013). They found that the use of ICT enabled students to learn at their home or everywhere else outside classroom. ICT usage makes students become more adaptive and flexible in learning process since they can find the best way of learning that fit and suitable for them and they also able to find various learning content from different resources from the internet.

Moreover, the finding of this study also found that ICT usage can promote and facilitate collaborative learning with their friends and people by using computer and the internet. Therefore, the finding is in line with Snodin (2013). He found that students' ICT utilization in blended learning promotes and facilitates collaborative learning because it encouraged students to form group and network.

Accordance with study conducted by de Sousa, Sevilla-Pavón and Seiz-Ortiz (2012) which revealed that the use of ICT promotes changes in attitudes, behavior and values and also in cognitive and perceptive processes, the finding of this study also revealed that the use of ICT tools such as computer and internet changed students learning attitudes and behaviors. When ICT involved in students learning the process, they showed more self-directed and self-managed behaviors in their learning.

The finding of the study has found the relationship between gender and the use of ICT and students' self-directed learning. Though the level of relationship between gender and the use of ICT and self-directed learning is not indicated high significance, still the mean value showed that female students had higher level of self-directed learning compared to male students. This finding was in coherence with the report of Reio and Davis (2005) that female students were more likely had higher levels of self-directed learning readiness than males students. Also, another report showed that the male students indicated the lowest level of self-directed learning readiness compared to female students (Reio & Choi, 2004).

Also, the result of the study has revealed that there was a relationship between students' place of origin (urban and rural) with the use of ICT and self-directed learning. Thus, the conclusion is that students from urban areas is better in term of the use ICT and self-directed learning readiness compare to students from rural areas. It was in coherence with the statement of Li and Ranieri (2013) that students in urban school are more advantageous in learning facilities which equipped by adequate ICT infrastructure, hence, they could easily improved their learning activities including learning on their own paces.

IMPLICATION AND RECOMMENDATIONS FOR FUTURE RESEARCH

The values from self-directed learning can be developed and promoted by using ICT that is a complementary device that help students learning the process. The findings of this study have revealed that the level of students' competency in using ICT tools is at moderate level. Therefore, the need to enhance students ICT competency by conducting ICT training or other related programs that aim to enhance students ICT competency is very urgent. Stakeholders must take an action to address this issue. The initiative must come first from the Ministry of Education as the highest authority in the country to make such decision.

Moreover, since the level of students self-directed learning is still low, stakeholders at school level, principals and especially teachers need to help students develop their self-directed learning skills and encourage them to use ICT to help their learning. It is important since self-directed learning can make the students more freedom and independent in their learning and the finding of this study has revealed that ICT usage can promote self-directed learning. In other word, self-directed learning makes students more autonomous and responsible for their learning. Furthermore, students' autonomy in learning also can promote lifelong learning. Therefore, the school must create a conducive environment to promote this skill by making curriculum design that can promote this skill and teachers also need to change their professional attitudes and traits.

At last, this study is expected to be useful resources for any further researchers who are interested in conducting their study in this area of study. Hopefully, this study becomes a useful information and valuable resource for further study.

Since this study focuses on the level of ICT competency and the level self-directed learning readiness of secondary school students, further study should focus on the level of ICT competency among primary school students. Moreover, the context of this study that located in urban areas is also another limitation. Further study should analyze the level of self-directed learning among secondary school students in rural areas. The disparity between urban and rural areas in term of facility and infrastructure is one important factor that needs to be studied. Usually, schools in urban areas are better equipped to schools in rural areas.

Another limitation of this study is this study conducted in private schools that do not have any financial support from the government. Unlike private schools, public schools have better support financially from the government. Therefore, it enables them to equip their school with various ICT tools and also can make training and other programs that help increasing students' ability in using ICT tools to promote self-directed learning. Thus, further studies should focus on public schools to compare the level of ICT competency and measure students' self-directed learning readiness and compare it with private schools.

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THE VALUE OF SOCIAL NETWORKING IN ICT. A NEW ZEALAND PERSPECTIVE

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Abstract: In 2010 The Neilson Media Group (2010) found that 70% of New Zealanders surveyed had a Facebook persona. With this level of engagement with the online social networking space why are New Zealand educators not consistently utilizing Facebook as an integral e-learning tool for students to discuss course content and collaborate on their assessments? Particularly as, international research has found that social network sites encourage students to collaborate with each other, as well as adding value to, and enhancing the contextualization of, their knowledge. While this article acknowledges the ongoing criticism associated with the use of social networking spaces as an e-learning tool, the focus is to analyse the positive aspects of the use of Facebook in Information and Communication Technology (ICT) education to engage with our target audiences. From this position this article has identified educators need to be involved with ICT policy development and review to ensure policies are robust, value based, and focused on growing responsible digital citizens to encourage this engagement. Furthermore, to achieve these values based policies there needs to be a focus for New Zealand educators producing scholarly outputs that capture a New Zealand cultural perspective in relation to the incentives, and barriers, of integrating social networking into the classroom.

THE VALUE OF SOCIAL NETWORKING IN ICT

Facebook dominates the New Zealand online social networking space. In 2010 research undertaken by The Neilson Media Group (2010) found that 82% of those surveyed identified Facebook as their preferred social media site, compared to 30% in 2007, and 70% of New Zealanders have a Facebook persona. With this level of engagement it is easy to appreciate that today's students are generally comfortable in the social networking environment. The focus for this report will be to explore how should educators harness this level of comfortableness and utilize social networking spaces, specifically Facebook, to enhance the learning experience of New Zealand students between the ages of 15-24 years.

While Facebook has traditionally required an affiliation with an educational institution, in the USA it remains the most preferred social networking site amongst college students with as many as 90% of all college students having a Facebook persona (Educause Learning Initiative, 2007). There are many commentators, including Cain (2008), who discuss a number of criticisms that are currently associated with the use of social networking spaces as an e-learning tool. These ongoing criticisms can be used as a way of demeaning the value of social networking spaces in ICT education, resulting in educators not utilizing every available opportunity to engage with their target audience.

Despite an awareness of these criticisms, there is an increasing interest in using social networks in education and Aronowitz (2009) identifies that there are two levels of interest at play here. There is the concept of expressed interest, where the educator indicates interest, which is rarely followed up with active interest. It is this lack of active interest that is having an impact on the uptake of social networking as an e-learning tool. The use of social networks in education has been shown to create a casual place of learning where students are encouraged to express their own thoughts, within the boundaries of the public charter which addresses appropriate participation guidelines. Through this participation, an online community is created where students experience a sense of connection with the educational institution and their peers. Cain (2008) believes that this connection may have a positive impact on student retention. A view supported by Einspar (2007) who found that when students felt a sense of connection with their learning environments, they tended to be more academically successful. This has direct relevance to the New Zealand Tertiary Education Sector and the current performance linked funding model driving the rationalization of tertiary funding, as well as the increasing focus on programme completion rates.

Furthermore, social network spaces encourage students to collaborate with each other and have been found to provide added value to, and the enhanced contextualization of, their knowledge. In 2007 the National School Boards Association (2007) completed a survey of American youth between the ages of 12-17. They found that of the 96% of students with internet access engaged with social networking, and 60% of these students were using networking tools to discuss class content and collaboration on class projects. Research has also identified that outside of the classroom Facebook is not limited to leisure activities. It appears to be utilized by students as a natural social activity and 54% of their interactions on Facebook are with their classmates (Cain, 2008). From a New Zealand perspective the 2010 Social Media Report has identified that 90% of people aged 15-24 engage with Facebook frequently (Neilson Media Research, 2010) and in the context of engaging with the target audience to discuss class focused content Facebook in New Zealand is an untapped e-learning resource.

There are a number of factors that contribute to the underutilization of Facebook. Educators observe students using collaborative technology every day and appreciate the need to incorporate ICT into the teaching and learning process (edWeb.net, MCH Strategic Data & MMS Education, 2009). Many students have access to Smartphones which enables them to access Facebook remotely. This moves social networking away from computers and into the classroom and according to Educause Learning Initiative Facebook has the status of an "always on" application (2007, ¶ 8). There is an opportunity to harness the potential of Facebook to become a channel for educationally focused dialogue and a preferred destination for students to learn. An issue that flows on from this recognition is educators compare their level of technological competence to their technologically savvy students and they perceive themselves to be technologically illiterate. However, Educause Learning Initiative (2006) would argue that any technology that is able to capture the attention of a significant portion students "offers opportunities for educators to understand the elements of social networking that students find so compelling and to incorporate those elements into teaching and learning" (¶ 9).

In an age of information literacy, there are many compelling reasons why Facebook should be integrated into the classroom environment. Educators have found participation rates in Virtual Learning Environments discussion forums to be low unless they are formally assessed (Mason, 2011; Young & McSparran, n.d.). While there are a number of reasons associated with this, including lack of motivation, it is the structure of the platform which, by its very nature appears to discourage students from communicating and interacting. Facebook is the social networking space of choice, and in 2009 Facebook use in New Zealand increased by 61% in one six month period (Attitude New Zealand, 2009). Facebook may provide an alternate environment to facilitate student discussion. Students are already accessing Facebook for personal use and the literature suggests that with proper promotion and management they will use Facebook as a means of communicating with lecturers and their peers to discuss class content and collaborate on class projects (Mason, 2011).

Conclusions and Recommendations

There are a number of international perspectives on the use of Facebook in ICT. It is important that we ensure any teaching and learning strategy implemented in the New Zealand ICT education system is culturally appropriate to the New Zealand context and the cultural uniqueness of New Zealanders is considered. One of the limitations of this article has been the absence of New Zealand focused statistics in relation to the effectiveness of integrating social networking into ICT education. With this in mind, New Zealand educators need to be focused on producing scholarly outputs that capture the New Zealand context in relation to the incentives, and barriers, of integrating social networking into the classroom. This will enable colleagues to have access to culturally appropriate resources to support their journey into the utilization of ICT as an essential component of the "teaching tool box".

In recent years ICT has become an essential component of learning in New Zealand and the implementation of social networking creates new challenges for educational institutions. ICT policies need to be robust, value based, and focused on growing responsible digital citizens. Currently ICT Acceptable Use Policies capture an institution's expectations in relation to ICT use within their organization and in some instances these are referred to as Public Charters. Their main purpose is to keep "users" physically and emotionally safe when interacting with institution guided online learning tools. The effectiveness of these documents can be compromised if the community does not subscribe to the values that underpin the policy. Therefore, it is essential to ensure institutions are able to demonstrate that they have a professional approach towards the management of their ICT users. This approach must move from one of regulation to a place where a high degree of autonomy and confidence is entrusted in our ICT users. As educators we must ensure we have a voice in the development of

these policies and actively participate in ICT policy development and review, as our focus is one of lifelong learning and this includes the growing of responsible digital citizens.

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