

How Lecturers Integrate Computer-related Technology into Instructional Practice: A Qualitative Study at a Higher Learning Institution in Malaysia

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Abstract: Malaysian higher learning institutions have embraced the 21st century skills in teaching and learning to ensure career readiness among learners. Information Communication Technology tools provide the opportunity for educators to apply problem-solving and project-based learning in both face-to-face and blended learning. However, there have been issues with educators' awareness and skills in utilizing the technology tools in the instructional processes. This study attempted to explore the experiences and intentions of lecturers to integrate computer-related technologies in undergraduate classrooms. In-depth semi-structured interviews were conducted with three lecturers, two of them teach foreign languages and the other teaches Instructional Technology. The study sought to reveal the pedagogical approach and types of information technology adopted in the classrooms. This study addressed teachers' awareness the use of technology in the classroom and issues related to it. The results were thematized based on Web 2.0 tools integration, pedagogical approach in addressing higher order thinking skills and student career readiness. Lecturers were found to be aware of the relevance of Web 2.0 tools for instructional purposes. However, they highlighted low Internet speed as the main challenge in their efforts to integrate technology into their instructional activities. This research contributes to the area of TPACK (Technology Pedagogical Content Knowledge) by highlighting the application of computer-related technologies into classroom instruction. It also highlights how such technologies are matched with learner-centered instructional strategies to enhance learners' 21st century skills that are essential for career readiness.

Keywords: *Computer-related technologies, Instructional practice, Pedagogical approach, Web 2.0 tools, Career readiness*

Introduction

The Malaysian Education Blue Print (PPPM) 2013-2015 in its ICT transformational shift code named "Leverage ICT to scale up quality learning across Malaysia" seeks to maximize the use of ICT for distance and self-paced learning (Ministry of Education Malaysia, 2013). This policy partly aims at ensuring that graduates develop the skills, knowledge and attitudes essential for college, career and citizenship in the 21st century. Thus, as teaching and learning activities in higher education are increasingly mediated by ICTs; lecturers must be prepared to adequately integrate technologies into classroom

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practice (Rathsack, 2012). Increased investments in ICTs in higher institutions is premised on the belief that learners will be able to develop the skills of finding learning resources, collaborating and problem solving.

Integrating computer technology in the classroom is not only limited to the hardware and software but also implies proficiently using them to make classroom instruction effective (Rice et al., 2008). Technology use in the classroom takes two forms, namely using technology as a subject to be taught to meet curriculum requirements and using it as a tool to facilitate instruction (Rice et al. 2008). From the foregoing discussion, it can be inferred that integration of computer-related technologies is the process of incorporating them into daily classroom instructional activities so as to improve the quality of student learning (Simin and Sani, 2015). Hertz (2011) has outlined four levels of classroom technology integration from her observations in schools. Firstly, is the sparse level, where technologies are rarely used due to the lack of usage among students in completing assignments. Second is the basic level. Here, technologies are used or available but occasionally. Learners at this level are comfortable with a few tools and sometimes apply these tools to design projects that indicate their understanding of the content. Next is the comfortable level. At this stage, technology is utilised in the classroom on a fairly frequent basis, and learners are comfortable with a variety of technology tools and often use them to create class projects that show understanding of the content. Lastly, is the seamless level, where learners deploy technology tools on a daily basis to accomplish tasks and create projects that demonstrate a deep understanding of the learning content. Thus different technology tools will affect different learning outcomes.

Literature Review

Computer technology use in instructional activities can be as an end in itself as well as a means to facilitate higher order thinking. Moreover, lecturers' integration of digital tools for classroom teaching allows learners to gain a set of skills that are vital to get connected in the ubiquitous learning space (Rathsack 2012). Whereas ICTs have the potential to foster 21st century skills and provide robust tools for student learning, the value of such technologies for classroom learning largely depends on how effectively instructors employ them to support instructional practices.

Several studies so far exist to give evidence of instructors' integration of computer technologies into classroom instructional practice. For example, a study by Amanda (2015) revealed that teacher librarians applied games to teach 21st century skills in their classrooms. Additionally, Salehi, Shojaee, and Sattar (2014) conducted a survey on the role of E-learning and ICT courses in educational environments in Iran and found that computers- related technologies have been widely employed in the teaching and learning environment. Kalonde (2014) revealed that teachers used video, power-point, Internet, Simulations, Email and Word processors in their teaching activities. As such, a variety approaches of incorporating computer-related technology have facilitated student learning, mastering the subject, enhancing students to learn the skills essential for career readiness. Better still, Noraddin and Kian (2014) studied university teachers' perceptions of utilizing digital games in classroom in Malaysian universities and colleges. They found that most of the university teachers in Malaysia have willingly started to employ 'digital games' in teaching.

Alismail and McGuire (2015) argued that incorporating school subjects and ‘21st century skills’ in teaching and learning is useful to learners as it prepare them for future jobs. The researchers added that in order to enable students acquire 21st century skills, there is a need to embed technology to develop essential skills that lead to critical thinking. This includes inculcating educational and social skills through communication and sharing information, collaborative learning, and allowing learners to air their thoughts during the learning process or while conducting research. Mcadams (2013) proposed that as teaching aims at the development of 21st century skills, instructors need to integrate digital resources based on empirical studies. They also need to have the essential knowledge and skills for properly using the digital tools to help learners when required.

Yarbro et al. (2016) investigated technology usage in the classroom among Mathematics and English Language Arts teachers from six districts related to digital strategies integrated into their lessons to teach specific academic content standards. They explored the six main digital instructional strategies and sixteen related instructional ‘tactics’ that instructors employed throughout the course. They found that instructors utilized technology for various instructional strategies with different degrees of frequency. Moreover, instructors’ usage of technology was regarded as a fundamental issue to instruction.

In terms of challenges faced in integrating computer technology, Kajuna (2009) reported that the limited numbers of computers and lack of computer skills by both instructors and learners hampered the effective integration of ICTs into classroom learning activities. Nyirongo (2009) in a study on technology integration at Mzuzu University, Malawi found that most instructors were using technology, only that they used it not for instructional purposes. Moreover, the instructors have reported limited access to technologies, inadequate training, and absence of technical support as barriers to technology use. Closely related to the above, a study by Kinuthia (2012) on challenges of integrating computer-related technology in education in Nakuru, Kenya have revealed that there was a shortage in the number of computers in schools. Most of the challenges mentioned above are not quite different from those reported by Amanda (2015) where library teachers had reported time constraint, inadequate infrastructure and limited support as some of the challenges to utilize the digital games in classroom teaching. Based on the discussions above, Table 1.0 summarizes the literatures. It can be concluded that initiatives and efforts have been taken to include technology in the classrooms despite challenges of technical and management support.

Table 1: A meta-analysis of computer technology integration in higher learning

Year	Author	Study title	Findings	Publication
2015	Amanda Hovious	Digital games for 21st century learning: Teacher librarians’ beliefs and practices	-Lack of support, time, school policy and lack of budget, incentives and the drawbacks of digital games as major challenges	University of North Dakota
2009	Kajuna W, L	Implementation of Technology Integration in	-Few computers, lack of computer skills by both	Ohio University

		Higher Education: A Case Study of the University of Dar-es-Salaam in Tanzania	instructors and learners as obstacles to integration of ICTs into classroom learning activities	
2014	Gilbert Kalonde	Teacher educators' technology decisions and the extent to which they model technologies for inclusive classrooms in teaching	-Teachers used video, power-point, Internet, Simulations, Email and Word processors in their teaching activities	Southern Illinois University Carbondale
2009	Nyirongo, Nertha Kate	Technology Adoption and Integration : A Descriptive Study of a Higher Education Institution in a Developing Nation	-Limited access to technologies, inadequate training, and absence of technical support as barriers to technology use	Virginia Polytechnic Institute and State University
2014	Salehi, Shojaee and Sattar	Using e-learning and ICT courses in educational environment: A review	-Variety approaches used to incorporate computer-related technology in making ready in various careers of the 21 st century	Journal of English Language Teaching
2012	Kinuthia, Ngugi Elias	Challenges of Information and Communications Technology (Ict) Integrated in Secondary Education : a Case of Nakuru County , Kenya	-Shortage in the number of computers in schools -Teachers and students needed the ICT skills in teaching and learning	Kenyatta University
2014	Noraddin, Kian and Neo Tse	Academics' Attitudes Toward Using Digital Games for Learning & Teaching in Malaysia	-University teachers in Malaysia employing 'digital games' in teaching	Malaysian Online Journal of Educational Technology
2016	Yarbro, Elliott, Kurz and Wardlow	Digital Instructional Strategies and Their Role in Classroom Learning	-Instructors utilized technology for various strategies with different degrees of frequency	Journal of Research on Technology in Education

Theoretical Framework

This study was guided by the TPACK model by Mishra and Koehler (2006). The TPACK model was actually an extension of Shulman's (1986) works on pedagogical content knowledge (PCK) in trying to comprehend teachers' knowledge on teaching. Mishra and Koehler (2006) thus expanded on the initial PCK framework to Technology, pedagogy, and Content knowledge (TPACK) as derived from the initial efforts of Shulman (1986). Mishra and Koehler have described TPACK as a framework to enable educators to integrate technologies into their teaching activities. It is a combination of knowledge of content, knowledge of pedagogy, and knowledge of technology (Guzey and Roehrig 2012; Harris and Hofer 2015).

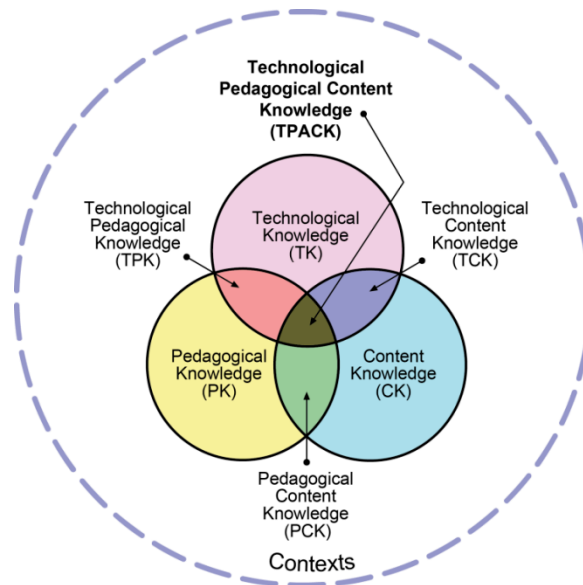


Figure 1: The TPACK framework (according to Mishra and Koehler, 2006)

Source: <http://www.tpack.org/>

The TPACK framework has been commonly depicted as a Venn diagram with three intersecting circles each of them representing a unique form of knowledge (as seen in Figure.1). The TPACK framework has three key forms of knowledge: pedagogical knowledge (PK), content knowledge (CK), and technological knowledge (TK). This framework postulates that by combining these three key types of knowledge, the outcome is the four categories of teachers' knowledge: pedagogical content knowledge (PCK), technological pedagogical knowledge (TPK), technological content knowledge (TCK), and technological pedagogical content knowledge (TPACK) (Graham, 2011). In the context of classroom application, the TPACK model is a dynamic framework to describe the knowledge that educators must rely on to design and implement classroom instruction while guiding their learners' thinking and learning with digital technologies in various subject areas. The implication is that knowledge of technology cannot be treated as context-free and that good teaching requires an understanding of how technology relates to the pedagogy and content.

Although E-learning in the Malaysian Institutions of Higher Learning has been in place since the year 2000 (Embi, 2011), literature review reveals that there is no comprehensive study so far conducted to understand how lecturers are integrating

technology tools in classroom teaching. Malaysian Universities have been equipped with the latest ICTs for teaching and administrative purposes. Lecturers in higher education have been introduced to various ICT tools and skills for teaching. On the contrary, the process of how instructors integrate the technologies into student learning activities is not yet clear (Raja, 2011). A study by Norazah et al (2011) on E-learning in Malaysia indicates that about 11 higher education institutions offer about 50% of their courses online, over 13% of the lecturers provide over 80% of the learning materials online, and that over 44% of the learners preferred using materials uploaded by their instructors. In the same study, it was found that students had a high preference for online materials, while lecturers indicated that integrating E-learning into their courses was beneficial to the learners. But the question that remains unanswered is how do the lecturers integrate computer-related technologies into teaching their courses?

In the attempt to answer the above question, this present study set out to explore the awareness and experiences among lecturers at a higher learning institution in Malaysia on the process of integrating computer-related technologies in the undergraduate classroom. In order to fully understand lecturers' process of integrating computer-related technologies into the undergraduate classroom, the following research questions have been designed: (1) What kinds of computer technologies are used in the undergraduate classroom? (2) Which computer skills are needed for undergraduate students in facing the 21st century learning? (3) What are the challenges faced by the lecturers in teaching using computer-related technology? (4) What are the instructional strategies used in the classroom with computer technology? And (5) How are the technology and strategies used to ensure that students are prepared for work in the future (career readiness)?

Research Design

The current study employed a qualitative design approach based on in-depth semi-structured interviews and classroom observations. The justification to apply the qualitative research approach was due to the need of thoroughly understanding the process involved in integrating computer-related technology into instructional activities by the lecturers.

Data Collection Procedures

The data collection process was guided by semi-structured interview protocol so as to ensure consistency of the results from the three informants. The interview questions generally probed the lecturers to share their experiences in integrating computer-related technology into instructional practices in the undergraduate classrooms. The interviews were conducted in English and lasted between 45 to 50 minutes for each session. In order to ensure the consistency of the interview data, an audio recorder was used to record the informants' responses. In the case of the classroom observations, a formal request was made to the lecturers concerned to allow the researchers to observe their classroom activities. The interview process as well as the classroom observations were jointly conducted by two of the researchers to enhance the robustness of the data and results. Besides, the researchers strengthened the results from classroom observations with follow-up questions with the respective instructors, seeking for clarifications on what was observed in the classroom.

Two key instruments were used in this study, namely an interview guide and an observation checklist. To ensure robustness, the two instruments were initially verified by a senior lecturer in the area of Instructional technology to establish if the interview questions and observation items were suitable for answering the research questions. Besides, the same key guiding interview questions and observation items were used across all the interview sessions and classroom observations for purposes of consistency.

Nature of Informants

The researchers purposively selected three informants for this study. This decision was based on the argument by Baker and Edward (2012) who stated that “Qualitative researchers generally study many people, but delve more deeply into those individuals, settings, subcultures, and scenes, hoping to generate a subjective understanding of *how* and *why* people perceive, reflect, role-take, interpret, and interact” (p. 8). Baker and Edward (2012) to that end conclude that “The question of ‘How many’ is not exclusive to qualitative research...” (p. 4).

Two of the informants were experts in foreign languages while one was from Instructional Technology. Informant A is an expert in the area of Instructional Technology field with over five years of teaching experience for both undergraduate and postgraduate classes. During that period, informant A reported to have taught courses like Instructional design and Multimedia, Internet Applications in education, Foundations of multimedia design and ICT in teaching and learning. Informant B was an expert in English language, with teaching experience of about six years, having taught courses like Semantics, English literature, and Psycho-Social linguistics. This informant also taught curriculum and instruction courses at post graduate level, in addition to foundations of curriculum and curriculum theory organization. Informant C had expertise both in Arabic language as well as Instructional technology. The informant initially taught at Matriculation Centre for 10 years before joining the Department of Language and Teaching to teach Arabic language. Initially the informant also taught Instructional Technology and Multimedia in education. The decision to select these informants was based on their rich experience in teaching the undergraduate classes, in addition to interest in using computer technologies for classroom teaching.

Data Analysis Procedure

Thematic content analysis was the key data analysis approached used in this study. As illustrated in Figure 2, three key steps were employed following the data reduction method in the analysis process. In that case, the researchers started the data analysis by transcribing the audio-taped interviews using the Express Scribe Transcription Software. A transcription data matrix was created for each interview which clearly indicated discourse units from both the researchers and the informant.

Secondly, the main-ideas matrix was created to guide the process of generating the main ideas from the transcription data matrix in step one. The 7-column table had columns for the interview questions, subordinate keywords, subordinate main points from conversation, elaboration examples from verbal to support the subordinate, occurrence of main idea transferred as key word, frequency of occurrences and ordering of discourse

units. The last stage of data analysis was that of generating of themes. This was accomplished by designing a four column table that reflected the interview questions to the corresponding three interviewees and their main ideas to create the themes. Data from classroom observations were equally analysed in respect to the aspects on the checklist and later integrated with interview findings to gain a comprehensive understanding of the technology integration process.

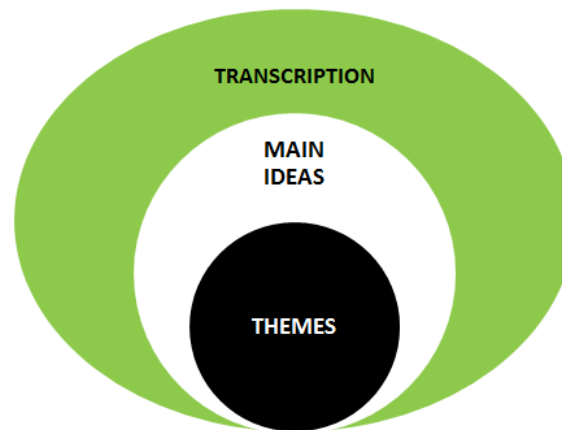


Figure 2: Data reduction approach to qualitative data analysis

Findings

This section of the paper reports on the informants' experience regarding the process of integrating computer-related technologies into classroom practice. The computer technologies used in the undergraduate classroom, computer skills needed for undergraduate students in facing the 21st century learning, how they help to enhance learner ICT skills, how technology is merged with instructional methods used and the challenges faced are reported. In addition, the section reports on the ways in which the lecturers use the instructional methods and technology tools to enhance student career readiness.

Computer Technology Used in The Undergraduate Classroom

Regarding the technologies employed in undergraduate classroom, the informants did not differentiate from their conceptualizations of computer-related technologies in terms of hardware and software. The unique finding has inferred to the widely use of Web 2.0 tools, which implies that there is a need to have stable and reliable internet connection in the classroom setting. Office applications like Microsoft Power point were used but in low intensity as reported by the informants.

Respondent A for example mentioned a wide range of software tools she used for classroom instruction:

“In terms of software applications i use of course the presentation software like power point, keynote, prezzi, aaahh Hycodec, so i use all these kinds of presentation software. I also use aaa i also use blog kind of application like Wordpress aahh Wix,aaa Google sites. I also use alot of Google

applications. Google slides for collaborative purposes. Then i use Google forms in the class, i use aamm what else do i use Gamification software. like Kahoot, Quizis Ahhhmm i also use Poll Everywhere Padlet Ahhh ok just a lot. sites like Youtube, Vimeo, slideshare”

Interestingly, Informant A pointed out that she preferred using softwares that are available free online because students cannot afford those that they have to pay for. Besides she viewed Facebook as a disruptive social media and preferred WhatsApp and Telegram as the key communication tools with her learners:

“Aaahh i will always get my students to explore the tools that are free. ok there are so many out there like wix and webley and wordpress and Google sites and they have aaamm you know very very good interface very good options. Sometimes i assign them to go to Freepic.com to get the graphics and they i will ask them to go to sites like Bensound something like that for free music”.

To support the use of the above mentioned software tools, informant A mentioned the hardware tools used:

“Aaah laptops, mobile phones, tablets”.

Unlike informant A who shared a rich experience in using technologies for classroom activities, informant B seemed to have limited application of such tools. His usage of Web 2.0 tools is limited to Facebook and the University’s Learning Management System. He seemed to point to the fact that the learners are mostly using them out of their initiative with minimal assistance from the lecturer. This is true when he mentioned that:

“However, I haven’t used many of those. When I attempt with my students, I have been using in the classroom. And so, we have been putting materials on the Facebook, through itaalim . And those are the platforms. And they have been downloading and accessing materials and information through outside the class. So, I guess, those two platforms have been the most common in the class and probably using power point. Ammm and.. Some of my students still use other games, aah..what they call the “Kahoot”.

As for respondent C, the preference for social media and Web 2.0 tools was at the top of the list, although he reported using standard software tools like Power point for classroom presentations. He mentioned the common use of YouTube, WhatsApp, and Video editing software as being the common tools used:

“You go to YouTube then.. you go editor.. everything is there. Now I use social web. Social web I saw some.... Applications useful for using e-learning. I ask them to listen... everything is there... for example I want to make a quiz online. I just want to share online I make link to them, then they have to answer questions. Everything is automatically graded. So, audio and everything I get from YouTube...then share with them using internet”.

Respondent C also revealed:

“Now, I use power point, I record my presentation. I use YouTube then I share with my students. I got my channel... my special channel for

education.. I use the video presentation form here... this is my channel...this is my channel”.

During the classroom observations, lecturer C used YouTube to access video content that guided part of the classroom discussions. Printed images organised in pdf file was used in the lesson. In one of the observations, the lecturer used his Mac laptop, speakers and the classroom projector to facilitate the teaching process.

In the second classroom observation of lecturer A where students made presentations, the classroom computer and projector were used to facilitate the teaching-learning process. It was also observed that some learners used their smart phones to read out the points they had summarised for the presentation.

From the foregoing analysis, it can be concluded that the informants were basically relying on the free Web 2.0 tools to enrich their instructional activities in the undergraduate classrooms. The usage of ICT tools vary from one lecturer to another. Unlike respondent B for example, informants A and C have background training in Instructional technology and their use of computer-technology integration into their instructional activities seems unmatched. All the respondents however reported using laptops, hand phones, desktops as the standard hardware in support of the software tools for classroom activities.

Computer Skills Necessary for Undergraduate Students in Facing the 21st Century Learning

Lecturers as well as the students must have certain skills and basic knowledge in ICT. In the same vein, respondents were asked about the computer-related skills they perceived important for the students. As such, the key required skills reported were the ability by students to find Information using computer, critical thinking in selecting information, techno-ethics, selecting which technology can facilitate problem-based learning, creating multimedia, creating digital learning materials and using online materials. Respondent A commented for example:

“Number one they need to be taught information literacy aaammm they need to have critical thinking on how to select information. to filter information and then number two they need to have the skills like self-management skills actually and how to discipline themselves with technology”

Closely related to informant A, informant B was very emphatic on the need for undergraduates to possess adequate skills to search for information online:

“they need skills for searching they have to know how to get them? How to find PDF, Power point.. they have to learn ICT skills”.

But unlike the other two, informant C underscored the need by the teacher trainees to be able to create multimedia learning materials given the fact that they are being trained as future teachers:

“actually, is very important to know how to make materials, how to use video, how to make video, how to How to integrate audio into video, how

to convert for example... the materials... from normal materials to digital materials... that is very important. That skill actually”.

From the voices of the informants above, the computer literacy of the learners was emphasised by the informants A and B. While the focus of informant C was on the ability of the students to create learning materials using the technology tools since they are being trained as teachers.

Challenges Faced By The Lecturers in Teaching Using Computer-Related Technology

Like any other innovations, lecturers' integration of computer technology into their instructional practices is too hampered by a number of obstacles. Whereas respondents A and B seemed to report related challenges in using technology in the classroom, informant C had just one specific challenge. For example informants A and B mentioned the poor state of computing facilities and slow Internet accessibility, informant C only mentioned about the slow Internet speed. The reason could have been his strong belief in the power of mobile technology that he does not necessarily need to rely heavily on desktop computers as he commented:

“Now the name must change because you call no computer today, they use hand phones, the capability of hand phones is more than computer. Because we can use WhatsApp, we can use Facebook, through hand phone. But computer very limited. You put information into computer but not very much. Here (in hand phone) you can contact anybody. Haa haa haaa! Now. Computer integrated technology we have to change the name.. no more computer actually. Mobile learning is more friendly. Computer, very limited”.

All the three informants however shared a common voice on the issue of Internet speed as being a common challenge that hampered their efforts to use computer technology for classroom teaching.

Respondent A said:

“we need speed. we need speed just to make sure that we do things faster aahh and to be a bit more efficient. If i teach Internet applications in education but the Internet is not there. that is how i would like it to be when the whole class of 30 people is trying to access the same application of course it lags with the current bandwidth. yaaa. and according to the national E-policy of Malaysia we should achieve a speed of 5-10 mbps or something like that but now we are only at one or two so it is not achieving the national bandwidth ya”.

Respondent B on the issue of Internet speed also commented:

“Well! Internet connection has been dying. The server is low sometimes internet connection is very low even students can't connect to itaalim. I remember once we wanted to do games on kahoot, The ... the server.. didn't”.

The voice of informant C was not very different from his colleagues as he said:

“Only the challenge I face on the delivery of the materials online is the line here in UIA very slow... very slow. For example when the students want to upload the video, some students say that I cannot upload because there is no internet. No internet in Mahallah, is very challenging! It is very very important to facilitate internet at students’ Mahallah because everything now we are using online”

Whereas informant B seemed to have a positive attitude towards integrating computer technology for classroom teaching, he needed more skills training to do it better as he said:

“I suppose I still feel the need for more knowledge and more skills on the latest software you know I wish I could take courses and then upgrade them in my knowledge because it was not in my study I think these things had happened in the last five years or less”.

Finally, it appeared from the revelations of informant A that the process of integrating computer technology in the undergraduate classroom is only among a few lecturers. This becomes a challenge in a way that the teacher trainees do not quickly see the value and need of using technology as teaching tools to foster their learning in other courses. Respondent A said:

“number three the challenge is to get all the faculty members on board with instructional technology because most of them are not competent and they still can’t integrate technology into teaching and learning very well so it creates a little bit of confusion with students you know whether should we use should we not use so that is another challenge uumm to get everybody to at least use italeem for example at least that is the very least”.

From the classroom observations, the problem of slow Internet connection lecturer C the he had mentioned during the interviews did not seem to occur as he used Youtube to access the video for his lesson. This could probably be attributed to the fact that it was morning time when there was less intensified users of internet in campus. In the case of Lecturer A when students were presenting, it was one group whose files had been corrupted by computer virus, and as such they failed to present at that time. Overall, no major technical issues were observed.

Instructional Strategies Used in The Classroom With Computer Technology

In line with the instructional methods used in the undergraduate classroom, the following was reported by the informants:

Informant A reported to be using student-centered instructional strategies in combination with the computer-related technologies. These included blended learning, project-based learning, student collaboration, inquiry and game-based learning. A few instructor-led strategies of demonstration and lecture were once in a while used as elaborated below:

“Alright aam I use blended learning approach in which students will do the also engage in online. so we have that kind of environment. aahh I also do student centered learning which is like you know project-based. Yes I use a lot of project-based learning && because they need to acquire skills so it is only logical for me to use that. Ok I also sometimes use a little bit of teacher centered-method like demonstrations or lecture-based whenever necessary so i don’t use one approach as the dominant approach”.

Respondent B did not deviate a lot from the other lecturers in terms of the teaching methods used in the classroom as he said:

“because aaaam actually get my students involved in the teaching. And I ask them to become creative, to become innovative and cognitively active. So they actually design their several activities. And variety activities. So, we have debate, we have quiz, we have role play. So, we have many types of activities”

Informant C reported using group work, collaboration and active learning and learner-centered activities as the key instructional methods. This was true when he said:

“Actually, I use discussion method. I use flipped classroom. I give them video to view then when they come to class I give them a problem to solve. I ask them to create their own websites for assignments. They work on them and do assignments in their websites. And then, I integrate these websites into one website which is very good/competent for assignments. Sometimes, I give them assignment about doing a video. They do a video in a group but everyone in the group must participate by contributing an activity. And every group has to convert a text/ story into drama. ... I select short stories and give to each group to convert them into drama to see their outcomes”

Instructor A as observed during classroom presentations used project method, student-led discussions, and collaborative method. This was evident from the fact that students were presenting their video projects as assignments they had been given earlier. The role of lecturer A was actually to facilitate the presentation session. As for lecturer C, the lesson began with question and answer method that later opened space for free discussion. Meanwhile in the course of using images, audio and video, the instructor applied strategies of inquiry, guided discovery for learners to make sense of the learning content. In addition, few demonstrations and illustrations were also used by the instructor.

Using Technology and Instructional Strategies to Foster Students’ Career Readiness

In terms of helping their students get prepared for the world of work, each of instructors employed a number of strategies. To informant A, technological skills, critical thinking, social media ethics and self-leadership were the key skills being enhanced as it was noted that:

“So in university setting it is probably the final stop before they are thrown to the real world to survive something like that yaa. Therefore we can use technology to inculcate all these skills even technology as we mentioned earlier is a skill in itself that needs to be cultivated alright. We also need to

add on things like you know project-based, problem-based, inquiry-based . just give students opportunity to be independent”.

As for informant C, the focus seemed to be more on ability by teacher trainees to create multimedia learning content and to communicate well. For example he pointed out that:

“because we are.... We are training the teachers... actually, I have to show them examples and methods. How we can integrate technologies in teaching. How to integrate everything with technologies in teaching. How to use mobile in teaching and learning. Actually, a lot of skills actually. For example, how to summarize, how to convert text into drama, here I focus on speaking skills. How to listen, this is listening skills. How to edit video.... They learn language skills, they learn ICT skills... they learn soft skills... how to talk in front of camera they learn how to collaborate, how to work together”.

Closely related to the strategies of informant A, lecturer C also tried as much as possible to enhance learner career readiness as he noted that:

“... I mean I always do.. encourage high thinking by asking questions, getting them to think, getting them to.. ah.. engage in activities whereby they have problems solved. Doing something, design something, I regularly make them in groups, I regularly make them in teams, I regularly get them discussing”.

From the classroom of lecturer A, the well-crafted video projects presented by the students showed evidence of learner collaboration, creativity, critical thinking and display of adequate ICT skills. Besides, giving learners chance to do and present the projects fostered their leadership skills, public communication skills and a sense of confidence. In the follow-up session after the classroom observation, the instructor revealed that the students actually choose their own topics for the projects, which demonstrated a sense of decision making in them. The key role of the instructor was actually facilitation by guiding student progress, assisting those with technical issues, giving them morale not to be shy and motivating the presenters through timely constructive feedback.

In the case of classroom observation for lecturer C, students’ listening, public speaking, critical thinking and information filtering skills were fostered. For example they were asked to carefully listen to the audio, pick out the necessary facts, watch video and relate concepts and then explain to the class. Thus from the above it can be seen that despite differences in the approaches used, the lecturers interviewed are doing their best to use technology and instructional methods to enhance student career readiness.

Discussion and Conclusion

The informants ‘A’ ‘B’ and ‘C’ have composed their agreement about the definition of computer-related technologies, basic skills required for 21st century learners, instructional strategies and methods imbedded in their instructional practices. However, the degree of utilizing these technologies varies based on their skills and competency in the technology. Lecturers were strategically fusing technology and instructional method to foster learner career readiness. Regarding challenges towards implementing computer-related

technologies, all three informants have complained about frequency of low internet speed as the major impediment particularly during teaching and learning with computer technology.

The above study findings agree with a number of past researches such as those of Fook (2011), Almekhlafi and Almeqdadi (2010), Ali, Haolader, and Muhammad (2013), Amanda (2015), Kajuna (2009) and Kalonde (2014). For example a study by Amanda (2015) where the teachers reported time constraints, inadequate infrastructure and limited support as some of the challenges to utilizing the digital games in classroom teaching. In terms of challenges faced in integrating computer technology, the present findings are aligned with those of Kajuna (2009) where he reported that few available computers, lack of computer skills by instructors hampered the effective integration of ICTs into classroom learning activities. Regarding the kind of computer technologies used by instructors in their instructional activities, Kalonde (2014) revealed that teachers used video, power-point, Internet, Simulations, Email and Word processors in their teaching activities. In addition, Nyirongo (2009) in a study on technology integration at Mzuzu University, Malawi found that instructors reported limited access to technologies, inadequate training, and absence of technical support as barriers to technology use.

Findings of this study are useful and able to contribute to educational practice in guiding lecturers in the process of computer technology integration for instructional use. In terms of contribution to knowledge, the findings will help the academicians to understand how the TPACK model can guide technology use for classroom practice. This study however has some limitations. It was a qualitative study with a very small sample size and as such the findings cannot be generalized. Further research on this topic is recommended by involving a larger sample size, using both quantitative and qualitative methods so as to improve the quality of teaching and learning in the 21st century.

Conclusion

It can be concluded that the findings of this study show that all respondents use computer-related technologies such as hardware and software of web 2.0 technologies in teaching and learning. Additionally, they incorporate these technologies into instructional strategies and methods to infuse 21st century skills among learners as to fit in the market place. However, the great challenge mentioned by all informants is the lack of sufficient bandwidth across the university. There are also some lecturers who rarely integrate computer-related technologies into teaching and learning instruction, majority of them being those with less ICTs skills. As such, the university management needs to take immediate action to lessen or to overcome the problem as teaching and learning can take place smoothly. Such action may include introducing ICTs special programs for teaching and non-teaching staff across the university.

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