GRADUATE STUDENTS' PREFERENCES IN TECHNOLOGY USAGE IN STUDENT-FACULTY INTERACTIONS AT THE UNIVERSITY OF CAPE COAST, GHANA

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ABSTRACT

Technology has had a major impact in education especially in the context of tertiary education. Such impact has manifested more in the advanced world compared to the developing world. This indicates that digital technologies undoubtedly have the potential to enhance traditional classroom teaching. Unfortunately, the exact nature of their contributions to educational achievement are highly debated and understudied in the African context. The impact of various uses of technology in tertiary African education needs to be well understood. This study therefore aimed at exploring graduate

students' perception regarding the use of technology in facilitating student-faculty interaction and its impact on learning experiences and outcomes at the University of Cape Coast (UCC), Ghana. The study had graduate students from EVT 852- Curriculum Development in Vocational and Technical Education, and SOC 803- Special Problems in Theory Building classes as its population. These courses were purposively chosen to be studied. All the twenty-three students in the two classes participated in the study. The qualitative research design informed the orientation of the study. In-depth interviews were conducted. The deductive and inductive thematic analytical approach informed the discussion of the qualitative data elicited via the interviews. The study found out that the participants were satisfied with the face-to-face and online technology-based forms of interaction for pedagogical and post-lecture communication purposes respectively. It is therefore recommended, among others, that more emphasis should be placed on technological use in education because it has the capability to enhance the learning experiences and outcomes of graduate students.

Key Words: Higher Education, Graduate Students, Face-to face interaction, Technology usage, Student-Faculty interaction, and Pedagogy

INTRODUCTION

Technology has increasingly become an integral part of our lives. Just as technology has changed and improved aspects of our daily lives, it is undoubtedly permeating and changing the functions and manifestations of social institutions such as education (Brown, 2011). Education has transformed due to current day usage of technology in the classroom (Stosic, 2015). According to Bordar (2010), technology into education has often been premised on the potential to revolutionize an outmoded educational system, to better prepare students for the future demands, and to accelerate national development. To Costley (2014), because the world is an evolving technological society, the use of technology in learning and pedagogical practices has become a high priority in education. Technology has therefore assumed a substantial stake in education to the extent that it is changing its processes and contents (Simuforosa, 2013).

Technology has had a major impact in education especially in the context of tertiary education, in terms of administrative organization, learning and pedagogical methods. It has positive impact on student learning because it aids in knowledge sharing and management (Delen & Bulut 2013). Sedler (2009) intimated that technology makes students to become active rather than passive participants in the learning and teaching processes. She added that when students are engaged in learning through technology, learning becomes more interactive, enjoyable, and informative, which improves students' attitudes towards learning. For Brown (2011) technology positively impacts on students' learning and motivation causing them to be more engaged; thus, students often retain more information and collaborate with their peers resulting in learning from each other. Furthermore, technology can transform the classroom into an interactive

learning environment which provides meaningful learning experiences. Augmenting the above assertion Costley (2014) acknowledged that technology provides hands-on learning opportunities which can be integrated into all school curricular as a powerful contributor to learning to enhance academic experience and learning outcomes. Technology use in education therefore holds the potential to deepen students' engagement in meaningful and intellectually authentic manner.

Experiences from the usage of technology in education suggest that it has enormous potential for knowledge management within the knowledge system framework, effective learning and the development of more efficient education services. Against this background, African universities are slowly but surely absorbing digital technologies in its educational programs even though its impact is under investigated. Some technologies that are typically incorporated into education include mobile learning platforms, interactive videos, complex gaming, electronic blackboards, social platforms, and electronic presentation tools. These tools are commonly referred to as "Technology Enhanced Learning" (TEL) tools. The level of effectiveness of TEL programs largely depends on the way in which the technology is integrated into the curriculum and how it is viewed by students, teachers, and school administrators (Brown, 2011).

Darrington, Berryhill and Swafford (2006) observed that high level of interaction with faculty leads to higher level of student performance and more positive attitude in online courses. Other scholars have made similar observations that the interaction between educators and students can be greater online than with that of on-campus class (Gilbert & Moore, 1998; Jarvela & Hakkinen, 2002). The above cited studies were carried out in western, developed-country contexts. It remains unclear whether similar levels of student engagement and learning outcomes could be achieved with Ghanaian students who traditionally have been accustomed to face to face methods of teaching and learning, despite rapid take up of new technology in their personal lives. This study in Ghana will therefore contribute to filling that knowledge gap about how out of class communication between students and faculty affects learning outcomes and help to improve mentoring and supervision of postgraduate and doctoral students in an emerging knowledge and digital based Ghanaian universities.

The prime objective of this study is to explore University of Cape Coast graduate students' perception regarding the use of technology in facilitating student-faculty interaction and its impact on learning experiences and outcomes. In order to attain the objective of the study the following research questions were posed to give the study an orientation.

- What was students' preferred channel of communication with their instructors?

- What were students' perceived differences in learning satisfaction between teaching and learning that occur with instructors via face-to-face, and online forms of interaction?

- Did different forms of interactions between students and faculty affect students' learning outcomes?

- What were the perceived negative impacts of different channels of communication with instructors?

The significance of the study lies in the fact that while digital technologies have the potential to enhance traditional classroom teaching, the exact nature of their contributions to educational achievement are actively debated and understudied in the African context. Though preliminary in nature, the study aimed to pave the way to a host of future work investigating the impact of various uses of technology in tertiary African education.

REVIEW OF RELEVANT LITERATURE

Technology in the education sector has evolved albeit gradually from conventional ways of teaching and learning in the classroom - that is, face-to-face interaction and knowledge construction within the bounded walls of the classroom to more sophisticated advances in the education sector where teaching and learning has been scaled over the bounded walls of the classroom to engage many more students who but for a plethora of reason cannot be in the classroom. Knowledge creation has thus been greatly altered at the advent of technology and this only promises enhancement in the creation and transference of knowledge in the years ahead. In this sub-section the review of relevant literature on technology-mediated interaction and education is captured.

The Polarized Arguments of the Benefits of Technology in Education

The increased use of technology in education has generated considerable debate over benefits and disadvantages. One pervasive tension is between the perceptions that technology in education yields a high performance in students' learning and the opposing perception argue that it does not in any significant way increase students' learning outcomes and performance. However, despite the divided view on the importance of technology in education, it is worth mentioning that the line of argument is skewed in favour of advantages of technology in education. Stosic (2015) reiterated that, technology effectively opens a world of possibilities for teachers and students. Effective applications of technology challenge students to use higher-level thinking skills and make active judgments, and apply learning to real-world situations and become active seekers rather than passive receivers of information. Similarly, Brown (2011) added that teachers can use online searches to find and access resource materials. Further, teachers can use the web to access curriculum and instructional guides for their

own use and practice. Students can also use the web to find and retrieve information they can use in their own class research projects. Others use web-based chat rooms and online communications technology to connect two or more classrooms in different parts of the world. Chapman and Mählck (2004) added that through technology students at different locations can ask and answer questions from those at the other locations. According to Kozma (2003), because technology has imperative functions, teachers in many countries are beginning to use it to help change classroom teaching and learning, and are further integrating it into the curriculum. Delen and Bulut (2013) in their study concluded that the effective use of computers and advanced communication technologies by students help them to improve their academic performance and overall learning experiences. For Brown (2011) technology in education can increase overall academic performance and learning experiences for students regardless of their socio-economic status, age, or race.

Contrary to the arguments made above, Schmitz, (1996) intimated that most teachers still lack the knowledge desperately needed to facilitate learning through technology. This inadequate technical literacy diminishes the effectiveness of technology in teaching and learning. Also, the use of technology can distract learning. For example, internet access could be a source of distraction because of chat rooms or online games, reducing the time spent in doing homework or learning. Thus, the impact of the availability of technology may decrease students' performance and provide them with negative learning experiences (Simuforosa, 2013).

Furthermore, technology-based instruction could restrict the creativity of the learner. It tends to allow acting only in a predefined way with limited interactive possibilities. This might reduce the students' abilities in terms of problem solving and creative thinking in predetermined schemes and also their ability to come up with independent creative solutions on their own (Sutton, 2013).

 Uses and Experiences of Technology in Education

The use and experience of technology in education has enormous potential for knowledge dissemination, knowledge acquisition, effective learning and the development of more efficient education services, however, the level of usage and experiences are not universally shared. Effectively integrating technology into educational planning and delivery can be a complicated process, leading to further disparities and challenges in the system. In evaluating the effect of technology in education, Youssef and Dahmani (2008) espoused that characteristics and attitudes of teachers, physical resources available in the universities, the teaching organization, number of students in a class, socio-economic origin of students, characteristics and attitudes of the students are determinants of usage of technology and on students' learning experience and outcome. They argued that there is a relationship between educational environment, students' characteristics, teachers' characteristics and

learning experience of students. For Delen and Bulut (2013) availability and access to technology varies in terms of age, gender, race/ethnicity, family socioeconomic status, socio-cultural issues and technical accessibility. For example, economic level of countries might also affect the availability of technology access for schools and students. Also, Jaggia and Kelly-Hawke (1999) found in their study that family background was clearly very important in explaining differences in usage of technology.

Bruce (1993) opined that when educators introduce e-learning as a pedagogical practice, they typically face a complex challenge of meshing new ideas with well-established beliefs and practices. One of the contextual issues which determines the level of usage of e-learning in higher education is socio-cultural factors and how well students together with their instructors adapt and adjust to the social change (that is a shift from the traditional mode of instructions to the use of technology). When technologies are released, they are adopted and appropriated within existing social values, structures and expectations; they are shaped and reshaped by users and they come to mean different things and be used for different purposes by different people (christen, 2013). Technology has different meanings in different settings. The already functioning social system and traditional practices in which the technology is placed shape the ways the technology is understood and used. In fact, those who do adopt innovations are typically faced with a challenging task of resolving conflicts between old practices that derive from powerful situational constraints and imperatives of the new technology (Bruce, 1993).

According to Zhu (2012), socio-cultural attributes has the tendency of influencing students' perceptions about e-learning and the usage of online space. McLoughlin and Oliver (2000) argued that to understand students' usage and preference of computer-based learning it is imperative to examine the socio-cultural background of the students. This is because it is through this medium that the interpretation of interactions and the construction of meanings are formed. Drawing on previous studies, Zhu (2012) compared attitudes, behaviour, and performance level between students of Confucian-heritage and Western learners on the use of digital mediated communication. He identified gaps which were as a result of socio-cultural differences. The study revealed that Western learners were more of an individualist culture, and students with Confucian-heritage more of a collectivist culture. The students from Confucian-heritage showed a tendency to be introverted and passive, and less active in online collaboration. They relied on teachers to guide study strategies. They were significantly less comfortable and contributed less to online discussions compared to western students.

Ghanaian universities just like other African universities are rapidly absorbing digital technologies. The educational system has undergone many transformations and one of them is the introduction of e-learning in schools. It has been argued that technology is

gradually infiltrating the pedagogical practices in the Ghanaian educational system particularly at the tertiary level (Buabeng-Andoh, 2012). However, the effectiveness and the success of this change remain sparse. There are contextual factors which determine the usage, attitude and perception of both instructors and students towards technology in education (e-learning). Examples of these militating factors are social interpretation of e-learning, erratic power supply, poor internet access. This however is not surprising because Ghana has been observed as a country in transition which is adopting modernity and at the same time sticking to the traditional means of doing things (Assimeng, 1999). Obviously, Ghanaians desire the material benefits of the modern world, but at the same time they find it difficult to sacrifice the emotional security and comfort that had been a feature of the traditional social order.

Further, Buabeng-Andoh (2012) revealed that some teachers have not fully adopted and adjusted to e-learning as a pedagogical tool. He argued that many teachers are hesitant to change an existing program to something they consider new like e-learning as they are not sure of the outcome on students' learning experience. Teachers' feelings, knowledge and attitudes influence their use of e-learning as a means of teaching, thus a negative attitude toward the use of educational technology will make the adoption and integration of e-learning in our educational system bleak. For successful adoption and integration of e-learning into teaching, teachers must perceive the technology as better than previous practice; and make it consistent with their existing values and past experiences.

THEORETICAL ORIENTATIONS FOR THE STUDY

This study is underpinned by Social Constructivism, and Uses and Gratification theories. Social constructivism according to Dennick (2016) is based on the premise that learning is a process which connects new knowledge to pre-existing knowledge. This confirms the assertion by Nicholson, Alley, Green and Lawson (2009) that a learner applies prior experience(s) and knowledge to new events to develop new understandings. Experience is constantly being assimilated or filtered through pre-existing concepts. New knowledge is therefore interpreted by existing knowledge. Individuals interact with the world in order to extract meaning from it and to construct a coherent and consistent cognitive model. Lowenthal and Muth (2008) asserted that this theory is based on how socialization and interaction with other people can help students learn and construct their own knowledge and personal learning processes.

The implication of this theory is that learning is always a building process whereby new knowledge can only be added on to and understood in terms of existing knowledge. Therefore, the understanding, adoption and usage of technology is based on students' prior knowledge and experience which permeates the new situation which in this case is the use of technology in learning. That is their constructions and the meanings they attach to the technology underscore the usage of technology for learning.

Uses and Gratifications theory (U&G) is a dominant theory in the area of communication studies and it has been influential in informing a host of researches in media and has been applied to other social institutions like education (Roy, 2008). The primary objective of the uses and gratifications theory is to explain and understand the psychological needs which shape peoples' reason for using the media and the reasons which motivate them to engage in certain media use behaviours that fulfil their inherent needs. In situating this theory in teaching and learning discourse, students select a medium based on how that particular medium satisfies their needs. The theory is appropriate to support the study because it is expected that students' preference for, and satisfaction with, any particular teaching and learning communication media is contingent upon how best the chosen medium best addresses their academic needs.

METHODOLOGY

The study had postgraduate students from EVT 852- Curriculum Development in Vocational and Technical Education, and SOC 803- Special Problems in Theory Building classes at the University of Cape Coast as its population. These courses were purposively selected because the instructors of the courses had structures already in place supporting technology usage (What app and G-mail social platforms) in the organization of their courses. All the 23 students in the two classes participated in the study. The two courses though different and handled by different faculties, they were both first year graduate courses. The two groups that took the courses were therefore put together to capture their perceptions and learning experiences as graduate students regarding technology versus face-face mediated interactions between faculties and students at the University of Cape Coast, Ghana.

The two courses – EVT 852 and SOC 803 – were taught at graduate level in the Department of Vocational and Technical Education, College of Educational Studies, and Department of Sociology and Anthropology, College of Humanities and Legal Studies respectively. These courses were purposively selected because of their unique academic posture which well matched the criteria of courses to be studied for this research. The criteria for the courses to be studied included the following; the course should be taught at graduate level; the use of online platform as part of the overall management of the course delivery; and the course lecturers' absolute inclination to permit their students to participate in the study. Few courses at the graduate level somehow met the criteria, but the two selected courses emerged as the best fit for the study's purpose. The two courses had some specific academic objectives in line with their descriptions.

The EVT 852 course reviewed the concept of curriculum and provided the rational for discussing the principles and procedures for curriculum development. While the course dealt with the general perspective on curriculum development, the focus was on curriculum of Technical and Vocational Education in general, and Ghana's Technical

Vocational Education and Training (TVET) System in particular. Further, the SOC 803 course explored the role of theory building and methodology in Sociology. The Philosophy of Science and Sociology of Knowledge were used to understand the scientific dynamics of Sociology. Special reference was made to the contemporary social problems confronting our society. In main, theory building, methodology, and research design were explored.

The qualitative research design informed the methodological orientation of the study. The qualitative interview was adopted in exploring graduate students' perception regarding the use of technology in facilitating student-faculty interaction and its impact on their learning experiences and outcomes at the University of Cape Coast. Students' preferred channel of communication with their instructors; their perceived differences in learning satisfaction between teaching and learning that occur with instructors via face-to-face, and online forms of interaction; and their perceived negative impacts of the different channels of communication with their instructors, were highlighted in the interviews. The deductive and inductive thematic approach informed the analysis of the qualitative data elicited via the interviews.

RESULTS AND DISCUSSION

Regarding participants' preference of face-to-face interaction and online interaction, there was a unanimous preference for face-to-face interaction. However, it is worth mentioning that students preferred the face- to-face interaction for the purposes of tuition (teaching within the confines of the classroom). Students however, preferred discussion of assignments and sharing of academic information through online space. This is because it provided them the flexibility to participate in learning anytime anywhere. This finding therefore suggests that the perceived satisfaction derived from a medium of communication determines the preference and satisfaction level of the students. As the Usage and Gratification theory stipulates, users of technology weigh the perceived satisfaction before adopting that technique. Therefore, it stands to reason that, students' preference of face-to-face medium of communication is as a result of the perceived gratification they derive from the interaction. In sharing of academic information and discussion of assignments, students derive the gratification of using online space because there is no restricted barrier as in the case of classroom and it can be accessed anytime anywhere. In other words, the preference for the online interaction was primarily driven by convenience.

Although majority of the students preferred face-to-face interaction as a medium for tuition, interestingly, reasons given were varied. Two main accounts were given. These are the socio-cultural dynamics and technical hitches. Pertaining to Socio-cultural dynamics, students who were adamant in the usage of digital mediated communication indicated that they have been accustomed to the practice of face-to-face as a mode of instruction from the elementary level to the tertiary level. To them face-to-face offers

them the right bonding with course mates and instructors; gives the opportunity to observe reactions and gestures of instructors (nonverbal communication); better form of interaction; conducive environment for teaching and learning as instructors can ascertain the understanding level of students from their facial expressions. Out of all the reasons given, the social relationship (bonding) really came up strong. Below are some sentiments expressed by students who preferred the face-to-face interaction.

> The online space is good but I prefer face- to- face because that has been my orientation right from the elementary school to this level. I enjoy face to face because it gives an ambiance of togetherness (Male student, SOC 803).

> I prefer face to face interaction because the use of online is not appropriate. It does not show respect interacting with instructor online especially via social media (Female student, EVT 852).

It is important to consider the cultural backgrounds of learners if we are to understand fully how they responded to online-based learning. The conservative behaviour they exhibited is as a result of the socially embedded constructions these students have formed with regards to the usage of online space. The notion of togetherness accompanying face-to-face interaction and inappropriateness of online space for interacting with instructors corroborates the assertion made by Zhu (2012), that socio-cultural beliefs have the tendency of influencing students' perceptions about technology and the usage of online space. To augment the above argument Bruce (1993) stated that, the already functioning social system and traditional practices in which the technology is placed shape the way the technology is understood and used. He added that there is always a challenging task of resolving conflicts between old practices that derive from powerful situational constraints and imperatives of the new technology. Giving a contextual explanation of how the merging of new innovation and traditional ideologies could be problematic for some Ghanaians, Assimeng (1999) opined that most Ghanaians operate in the traditional and modern social systems at various levels of social interaction. Ghanaians desire the material benefits of the modern world meanwhile they find it difficult to sacrifice the emotional security and comfort that had been a feature of the traditional social order.

Further, the students noted unreliable internet facility and erratic power supply as reasons for their preference for face-to-face interaction. They explained that poor internet service and unreliable power supply stifled the usage of online communication. As a result of this, face-to- face interaction was preferred because they received prompt feedback from the instructors without delay and also because of its independence from excessive external influences such as availability of power and internet. Some views expressed by the participants are captured below;

> Even though online office hours via internet usage is very convenient, poor internet access makes it very frustrating to use" (Male student, SOC 803).

Poor internet access delays communication and makes it not convenient to use especially when you want to discuss something with your instructor" (Female student, EVT 852).

The use of social media platform as online interactive mode between faculties and students was also explored. Three social media platforms were introduced to students. These were WhatsApp, Facebook and E-mail. The findings showed that WhatsApp was the most preferred mode of interacting with instructors followed by usage of E-mail. Facebook was very unpopular with regards to the preferred social media platform for the discussion of issues pertaining to coursework. Reasons given for the high patronage of WhatsApp were: convenient to use in interacting with instructors; make up for time lost in class; makes conversation succinct; address urgent issues; generally convenient to use as conduit in socializing with instructors and course mates. It is evident that the high patronage of WhatsApp was mainly because of flexibility and convenience. It came in handy and was seen as a make up for the deficiencies in face-to-face interaction. Two participants commented as follows;

It's a convenient way of communicating with instructors. It gives me the opportunity to ask any question on the course. I used that to socialize with my instructors (Male student, SOC 803).

WhatsApp is accessible at any time. We can bring on board issues that were not discussed in class. It makes up for time lost. For me it is very flexible (Female student, EVT 852).

This finding attests to the argument made by Sun, Tsai, Finger, Chen and Yeh (2006) that the more learners perceive usefulness and ease of a technological medium, the more positive their attitudes are toward that medium. Subsequently, this improves their learning experiences and satisfaction, and increases their chances for using that medium in the future.

Also, students enjoyed the use of E-mail because it was flexible and gave them the opportunity to access relevant course materials by way of attachments, easy access to information/announcements and communicating with instructors and mates when necessary. The findings showed that students frequently viewed their E-mails to share copies of class presentations, announcements for submission of assignments, presentations, seminars among others. Although the WhatsApp and E-mail were easy to use, there was a challenge of poor internet accessibility which often impeded their usage. This has the tendency to deter students from the usage of the online social platform. Again, as Sun, Tsai, Finger, Chen and Yeh (2006) observed, internet quality significantly affects satisfaction and the usage level in e-learning. Users are willing to adopt tools with fewer barriers leading to enhanced satisfaction. Therefore, the higher the quality and reliability in e-learning the higher the learning effects will be and vice versa.

Even though the general preference for mode of tuition was face-to-face interaction, the few who nonetheless used electronic communication with their instructors scored significantly higher in their end of semester examinations as compared to the traditional group who were adamant in the usage of digital mediated communication. The findings also depicted that the students who spent longer online hours with instructors did better in all assessments than those who did not. Evidently, students who patronized the social platforms - WhatsApp and Email - instituted to engender interactions between students and lecturers performed creditably well than the students who did not engage in such platforms of interaction. This is because student had the opportunity of asking further questions and receiving quick responses from instructors outside the confines of the classroom, which to them was convenient. This resonates well with the literature on positive relationship between the use of digital mediated communication and high-performance level. For example, as Chandra, Theng, Lwin, & Foo (2009) intimated that the use of digital mediated communication in learning can result in unparalleled flow of ideas, leading to higher levels of performance. Interestingly, though most of the students opted for in-person office hours, such interaction did not give the students any advantage in terms of performance.

CONCLUSION AND RECOMMENDATIONS

Although there is a quick rush for the usage of digital mediated communication in higher institution, the traditional face-to-face pedagogical practice was preferred as a medium of tuition because of socio-cultural stickiness or conservatism, and perceived mistrust surrounding online or technology-based interaction. Even though the students were more satisfied with the face-to-face interaction for teaching, they generally perceived this medium of interaction as a potential impediment to innovation and improved learning outcomes.

The study further showed that the online interaction was the preferred channel of communication between students and instructors outside of the lecture room because of convenience and accessibility. The participants were therefore satisfied with the face-to-face and online technology-based forms of interaction for lecture and post-lecture communication purposes respectively. It was evident that participants who used online space for learning purposes and interaction performed better than their counterparts who did not. This is in spite of the fact that the study consistently recognized access to uninterrupted internet service as immense challenge.

The following recommendations are therefore made based on the conclusion drawn above. Though a blend of face-to-face and online interactions seems the best option for effective teaching and learning in higher education, more emphasis should be placed on technology use in teaching and learning in higher education. The reason is that, it has proven to increase the performance level of students by offering them an environment to engage in more dynamic dialogue with instructors and colleagues.

Therefore, it is recommended that an enabling environment (reliable internet connectivity) be created for both students and instructors to fully enjoy the usage of online space. Thus, access to uninterrupted internet is a dimension in promoting and realizing the full benefits associated with technology use in higher education in Ghana.

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