Editor's Note: This is a study about transition from traditional methods of teaching and learning to a student-centered approach with elearning based on a substantial body of research, theory and practice..

Students' perception of the potential of elearning practices at the University of Guyana

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Abstract

The University of Guyana, up to the present time, continues to embrace a traditional learning and teaching approach in its educational practices. Face-to-face contact is the principal mode of instructional delivery. Further to this, the conventional Distance Education, via the print-based correspondence mode, is still the current trend. Such a method favours but a handful of students. As has been revealed by research, such an approach, even if it might engage students, is still teacher-directed and rejects an emancipative, student-centred approach to learning. Elearning, however, seems to be gaining momentum as the instructional delivery mode in many educational institutions in both developed and developing countries. This supposedly fosters student engagement and emancipation. Considering the afore-mentioned, the present study focuses on students' perception of the potential of elearning practices at the University of Guyana. In relation to the aim, objectives and research questions of this paper, a survey about elearning was constructed, through a purposive sampling technique, aimed at University of Guyana students. Subsequent to its design, it was implemented with a view to highlighting, through respondents' answers, the practicality of espousing technology-based education for the higher education institution. The data was analysed empirically, through a mixed method approach, and by means of data triangulation. The findings illuminate that the students are, by and large, generally ready for elearning and are prepared for this new educational initiative. Recommendations are made for this instructional delivery mode to be adopted and incorporated into the learning-teaching process.

Keywords: elearning; elearning practices; technology; technology-based education; higher education; instructional delivery mode.

Introduction and contextualisation

Guyana, known as the 'land of many waters', is the only English-speaking country found in the continent of South America, is home to a population of approximately 780,000. While 90 percent of the population occupies the narrow and relatively easily accessible coastal plain, the remaining population is sparsely distributed in the mountainous and forested hinterland which, more than any other part of the country, is affected by limited trained human resources.

In terms of tertiary level education, the University of Guyana (UG) is the only higher education (HE) institution in Guyana. It is located on the coast of the capital city, Georgetown. Established in April 1963, the University currently has a student population of approximately 6,300 students with a yearly intake of about 1,500 (UG Registry, 2014). The staff population is approximately 924 (UG Personnel Office, 2014).There are 14 Statutory Officers who comprise UG's core leadership (UG Website, 2013), 514 lecturers (UG Personnel Office, 2014), and the remainder, other University staff members.

The UG has two campuses – the Turkeyen Campus and the Berbice Campus (UG Website, 2013). The Berbice Campus, opened in November 2000, was established to provide university education

access to persons in that region who were unable to attend the Turkeyen Campus, located in the capital city, Georgetown. Owing to the lack, or unavailability, of skilled teaching faculty in the Berbice region to deliver its programmes at the Berbice Campus, lecturers from the Turkeyen Campus would normally travel there to take care of these needs. A map of Guyana showing the UG's two campuses is presented in Figure 1. The Turkeyen and Berbice Campuses are located at 1 and 2 on the map, respectively.

Figure 1: Map of Guyana showing UG's campuses.
[Source: www.guyana.org]

The University's curriculum has not been modified for approximately 30 years (Livingstone, 2013). The existing didactic modes are the traditional face-to-face (F2F) interaction and distance education (DE) via print-based correspondence. From personal observation, all learning is teacher-controlled. Diversified learning and teaching with technology is not promoted (Livingstone, 2013). An important issue which needs to be addressed is institutional modernisation through quality enhancement. In this era, where technology has become ubiquitous, and where a large number of students are technology savvy, the UG needs to shift its focus towards embracing technologies in education, in order to become more marketable and compete with other universities abroad that offer online courses and programmes. This shift will be a stepping stone towards the delivery of cutting edge higher education.

Elearning has the potential to significantly accommodate different learning styles and needs (Laurillard 2007, 2008). The objective is to get students to separate themselves from the full F2F classroom setting, favouring a flexible virtual environment. Goold, Craig and Coldwell (2007) indicated that elearning enables a greater number of students of diverse educational and cultural backgrounds, as well as of modes of study, to come together within the one virtual classroom. Given this is the age of technology, and many universities are integrating it into the pedagogical process, it would not be unjust to say that the pedagogical scenario at the UG would be boosted significantly if it were to integrate elearning practices.

Theoretical framework and literature review

The theories selected that orient this study are (1) *constructivism* [social constructivism], (2) *transactional distance* [independence and autonomy; interaction and communication] and, (3) *connectivism*. Each of these is discussed briefly, in the light of this study, justifying their necessity for quality educational practices at the UG.

Constructivism

In recent times, there has been a shift to *constructivism* (Ally, 2004). *Constructivist theorists* (Piaget 1928; Vygotsky 1930; Dewey, 1938; Bruner, 1973; Jonassen, 1999) claim that learners interpret information and the world based on their personal reality, and that they learn by observation, processing, and interpretation, and then personalise the information into personal knowledge. In other words, learners learn best when they can contextualise/situate what they learn for immediate application and to acquire personal meaning. Constructivists see learners as being active protagonists of their learning (Cooper, 1993; Wilson, 1997; Tapscott, 1998). The learner is the centre of the learning, with the teacher playing an advisory and facilitative role. Duffy and Cunningham (1996) postulate that learners should have the opportunity to construct knowledge instead of being the receivers of knowledge through instruction. It therefore follows that learning must move away from teacher-centred instruction to knowledge discovery and construction.

Social Constructivism

Social constructivism was developed by Vygotsky (1978), a post-revolutionary Soviet psychologist. Its emphasis is on the collaborative nature of learning. Vygotsky, though being a cognitivist at the time, discarded the hypothesis made by other cognitivists like Piaget (1932) that separating learning from its social context was possible. He defended his stance that all cognitive functions originated in society, and should therefore be explained as products of social interactions, since learning was not simply the assimilation and accommodation of new knowledge by learners; in fact, it was the process by which learners were integrated into a *knowledge community*. In other words, these social interactions among individuals can blossom into a community of learners, or learning community, where this is mutual interdependence.

Vygotsky's (1978) four principles of *social constructivism* are: (1) learning and development in a social, collaborative activity; (2) school learning should occur in a meaningful context and not be separated from learning and knowledge children develop in the 'real world'; (3) out of school experiences should be related to the child's school experience and, (4) Zone of Proximal Development. It is important to mention that these principles highlight the critical weight of culture and the significance of the social context which is largely responsible for the development of students' cognitive skills. His *'Zone of Proximal Development'* is perhaps his best-known theory, which argues that, with assistance from adults or more advanced learners, less advanced students can master concepts and ideas that, on their own, might pose challenges to them.

The constructivist approach to learning and teaching is absent from the pedagogical practices at the UG. Educational practices there are still based on the traditional approach **(**Livingstone, 2014). Teacher-centred strategies are still employed, where the teachers impart knowledge and students absorb it. Students are not the centre of learning; in fact, they are passive learners. It is a very daunting situation, as students are not given the opportunity to have autonomy over their learning. Most learning-teaching activities at the University are still largely individual. There is not much interaction and communication to complete assigned tasks.

Since learning is not static, learning theories must change to suit the broader educational context in which they are found. 'Quality learning', as noted by Biggs and Tang (2011), is all about ensuring that learners use the appropriate cognitive skills required to construct knowledge and

negotiate meaning during task completion, thus paving the way for *creativity*, *application* and *life-long learning*. They must be provided with a broad-based learning and with a repertoire of learning tools and sources. Employing the social constructivist approach will ensure quality learning for all students at the UG.

Integrating elearning practices into the learning-teaching process at the UG will definitely support constructive learning. Learner-centered, interactive and collaborative practices will be experienced. In these innovative learning environments, learners will have the opportunity to be independent and autonomous over their own learning process. In addition to these, by the integration of Internet to educational settings, traditional forms of distance education at the UG will be modified, allowing the new medium for distance education practices – the Internet – to take root.

Transactional distance

Within the last thirty years, there has been a formalisation of DE as a discipline. A familiar characteristic of DE is its ability to deliver educational material to students with differing geographical and sociological realities (Anderson & Thomas, 2001). This declaration is true, as the whole purpose of DE is to cater for the needs of students who may be unable to attend F2F classes, for one reason or another. With the advent of technology and the Web, the definitions of DE have been altered to suit the current age. As computers began to inject themselves into the educational context, a proposed definition identified the delivery of instructional materials using both print and electronic media (Moore 1990, 1991).

This naturally aroused a need to develop a new learning theory for all those involved. Moore (1991) states that the first attempt in English to define DE and to articulate a theory appeared in 1972 and in 1980 called the *theory of transactional distance*. Looking more carefully at the concept of transaction, he explained that it connoted the interplay among the environment, the individuals and the patterns of behaviours in a situation. This transaction *is* distance education. Moore (1997) explains that when referring to DE, there is more than a geographic separation of learners and teachers; there is also a distance associated with understanding and perception also partially caused by geographic distance. Therefore, this 'psychological and communications space' is what is known as the transactional distance. Gokool-Ramdoo (2008) puts forth that the degree of transactional distance is dependent on three variables: dialogue, structure, and learner autonomy. Each of these is of paramount importance to the successful transaction of that distance.

Since the UG still embraces traditional learning and teaching, DE at that HE institution has not evolved over time, and it is executed via the traditional print/correspondence mode. In this mode, learner needs are not carefully considered. Course content is sent to students, and they are expected to cover all of the areas within a given time, with little input from the instructor. This is what needs to change and, in fact, technology-enhanced DE will create a paradigm shift, moving the focus from teaching to learning, enabling effective transactions among all parties involved.

In other words, due to transactional distance, the teaching/learning process will be a shared responsibility that occurs through a dialogue between teacher and student. The learner will be aware of the learning activity and think about what is being learned (meta-cognition). The learner will also utilise critical thinking skills to develop a true awareness of the learning process. This will come about with the use of reflective practices, which can be created through dialogues with the instructor and with other students. Extremely important concepts, relevant to transactional distance, are *independence and autonomy* and *interaction and communication*.

Independence and autonomy

In Moore's (1972) *Theory of Independent Study*, he addresses learner autonomy. He notes that in traditional school settings learners are very dependent on teachers for guidance and that in most

programmes, conventional and distance, the teacher is active while the student is passive. In distance education, there is a gap between teacher and student, so the student must accept a high degree of responsibility for the conduct of the learning programme. The autonomous learner needs little help from the teacher, who may be more of a respondent than a director. His definition of independent study provides a clue for understanding the concept of 'learner autonomy'. The learner studies independently in his own environment free from the constraints of inappropriate 'class placing' and develops in himself a capacity and maturity that enables him to carry on 'self-directed learning'.

Wedemeyer (1981) considered the independence of the student as the essence of distance education. He preferred the term 'independent study' for DE at the college or university level. He was critical of contemporary HE patterns. He believed that outdated concepts of learning and teaching were being employed, and that these concepts failed to utilise modern technologies in ways that could alter an institution. He challenged university administrators to expand access and opportunity to autonomous learners. He set forth a DE system that emphasised learner independence, and technology adoption as a way of implementing it. Since these four common elements were present in every learning-teaching situation-a teacher, a learner, a communications system or mode, and content-he proposed a reorganisation of these elements to accommodate physical space and allow for greater learner freedom.

At the UG, there is a dire need for student independence and autonomy. All learning is teacher-dependent and non-autonomous, since these are characteristics of a traditional pedagogical approach still in vogue at this educational institution. In a teacher-directed setting, independence and autonomy are non-existent, as all learning experiences are chosen for the students. What is required of them is to simply follow the instructions in order to 'learn'. ICTs integrated into the learning process of students will foster learner independence and autonomy, and engender students with more significant learning experiences. It is all about making learning constructive, where students will be the protagonists of the learning process. This is another very important theory to consider, if the UG is to implement E-Learning.

Interaction and communication

Interaction (or interactivity) serves a variety of functions in the educational transaction. Sims (1999) has listed these functions as allowing for learner control, facilitating programme adaptation based on learner input, allowing various forms of participation and communication, and acting as an aid to meaningful learning. In addition, interactivity is fundamental to the creation of learning communities (Lipman, 1991; Wenger, 2001). The value of another person's perspective, gained through interaction, is a key learning component in constructivist learning theories (Jonassen, 1991), and in inducing mindfulness in learners (Langer, 1989).

Interaction has always been valued in DE, even in its most traditional, independent study format. Holmberg (1989) argued for the superiority of individualised interaction between student and tutor when supported by written postal correspondence or by real-time telephone tutoring. He also introduced the idea of simulated interaction that defines the writing style appropriate for independent study models of DE. Many authors highlight the critical interactional relationships between content, student and teacher (Garrison and Shale, 1990; Laurillard, 1997; Anderson, 2004)

Interaction and communication are critical for meaningful learning, and this is where the instructional practices of the UG are falling short. Learning diversification is absent. There is little or no interaction in the traditional face-to-face sessions, possibly because some students are fearful of ridicule, or perhaps they are not bold enough to share their ideas in public, or even perhaps they have nothing to say, at that specific moment. Whatever the case may be, interaction

is not necessarily encouraged. Teachers make students understand that they are the experts, the 'sage on the stage', and that students are to accept what they say, without inquiry.

If students are to develop creative, critical and complex cognitive skills, then they must be able to construct knowledge for themselves, querying and inquiring as they negotiate meaning and derive functioning knowledge. This can only happen when they interact and communicate. Technology-Based Education can provide students with the interaction necessary to have transformative learning experiences by creating strong learning communities and establishing collaborative learning as a powerful tool for maximising student learning outcomes.

Connectivism

Connectivism is a theoretical framework that helps to understand learning. It is mainly concerned with cognitive development. Learning begins when learners join together in a learning community, and knowledge is then put into action by discussing, sharing, and thinking (Downes, 2012). Knowledge comes from a variety of domains and disciplines and access to the Web, which makes this easier. Siemens (2008) stresses that the ability to make connections between fields, ideas, and concepts is a core skill. Knowledge does not fit in a pre-packaged curriculum, although formalised education must deliver it to a degree. However, as learners become autonomous and seek information on their own, they come to understand the existence of an endless world of knowledge. Considering the wealth of information available on the Web, it is crucial for learners to be able to filter through information and to ensure it is from a valid, reliable source. As stated by Siemens (2004), the capacity to know is more critical than what is actually known.

The traditional approach to learning and teaching, espoused by the UG, does not embrace a connectivist approach. The kinds of learning tasks that students are required to perform do not always cause them to use the appropriate cognitive skills to complete them, because tasks are sometimes disconnected from their realties. Learning is a connected process. It does not exist by itself, as meaning is derived from the relationships between concepts and ideas. Connectedness within the learning process helps students to make sense of the realities which surround them. It is in this light that this theory must also be embraced as relevant to E-Learning in these times. Such a theory can only thrive when students are given autonomy to explore the various connections that are involved in the pedagogical process, to the extent that they themselves derive meanings of these connections and seek to foster *creativity*, *application* and *life-long learning*.

It is important to note that at the UG, the role of the tutor will have to change, where some of amount of control over the classroom situation will have to be relinquished. Students need to move from an environment controlled by the teacher and the institution, to an environment where they direct their own learning, find their own information, and create knowledge by engaging in networks away from the formal setting. They still communicate with other, however their personal interests and preferences – rather than institutional requirements and choices – are the main drives for their engagement with more knowledgeable others in their learning.

Accessibility and equality in education

In the last three decades there have been great changes in the HE landscape in both developed and developing countries. Increasing access to HE has resulted in a diversification of student populations that come with a wide range of learning styles and needs different from the traditional student populations. While the numbers are steadily increasing, there is still a large number of students who are not able to attend HE institutions due to problems of *accessibility*. As noted by the United Nations (2014), education is a basic human right and each individual should have equal access to it. This access paves the way for *equality*/*equal opportunity* in education. Equality in Education is another very fundamental concept which should not be divorced from accessibility. In other words, if education is accessible to all, then it would be safe to say that

there is educational equality. In simple terms, educational equality, according to the American Library Association [ALA] (2014) is dependent on two main things: *fairness* (one's personal conditions should not impede one's potential for academic success) and *inclusion* (a comprehensive standard that is applicable to everyone in an educational context).

Elearning

The rapid growth of elearning worldwide has changed the learning environment for both students and teachers (Lapointe & Reisetter, 2008; Williams & Williams, 2010; Laurillard, 2012). One area that has experienced phenomenal changes as a result of the use of Internet technology is the area of Education. The concept of elearning is facilitating the teaching and learning experience using new channels and technologies. It is in this light that many tertiary institutions are heading in the direction of incorporating technology in on-campus and off-campus education delivery, and there must be reasons for this move. According to Jamlan (2004), these are: (1) The growth of information technology: elearning has become an ideal delivery vehicle for education and learning; (2) It is information rich: elearning offers both teachers and learners access to anywhere, anytime "information rich" resources; (3) Alternative learning strategy: elearning can reach those previously denied access (e.g., students with physical disabilities) and, (4) Blended learning: elearning can augment traditional classroom offerings, thereby freeing up valuable resources and expanding the offerings to greater numbers of campus-based students.

Methodology

In fulfillment of the aim, objectives and research questions of this study, a survey was carried out, using a *mixed method approach* (Creswell, 2009), to determine the suitability and viability of employing technology based-education based on the responses from the participants of this research. A *purposive* sampling technique (Palys, 2008) was used for this study, since the group of respondents was best able to answer the research questions.

Aim/questions/objectives

The aim of this study is to explore the potential of using technology in educational delivery and its implementation at the University of Guyana. The specific research questions of this study are the following: (1) Are students ready to embrace technology-based education? (2) What form of elearning do students desire? The objectives of this study are to: (1) Analyse student satisfaction of current pedagogical practices at the University; (2) Investigate the use of technology in educational practices at the University; (3) Establish the form of elearning for University students; (4) Recommend technology-based education for tertiary learning and teaching.

Investigative site

The investigative site for this research was the UG, which is a tertiary education provider located in Guyana, in the continent of South America. This University was chosen specifically because of the researcher's connections to it, and given the fact that the traditional approach to learning and teaching is still being employed there.

Student population

The University has a student population of 6, 300 students spread across its two campuses (UG Website, 2013; UG Registry, 2014). The majority of the students attend the Turkeyen Campus, the larger of the two campuses located in the capital city, Georgetown. The remaining students who reside in the Berbice Campus environs attend there. Students pursue a wide range of certificate, degree and diploma programmes for which they must attend the F2F sessions.

Instrument

The research instrument was an online survey, which consisted of 10 open-ended and closed-ended questions, hinging around the two research questions. Four of the questions utilised the '5-

point Likert Scale system', which also required further explanation to the chosen answer; three of the questions were one-answer multiple choice questions with one of them requiring further clarification; two of the questions were essay-type, and the final one required a specific selection and a subsequent justification for that choice which provided opportunity for triangulation. The questions centred on the current student location; student satisfaction of current pedagogical practices at the institution; students' familiarity with, feelings about and understating of elearning; students' view of implementing elearning at the University, their preferred form of elearning and a reason for their choice. The determined sample target for UG students, in accordance with Leedy and Ormrod (2010, 2013), was 400. Additionally, the survey bore the research ethics approval number, a definition of 'elearning', an explanation of the 'Purpose of the Research', and a 'Confidentiality Statement'.

Implementation of instrument

The survey link was officially sent out on May 14, 2014 via the UG Students' mailing list. Though they were not told in the email messages, respondents were given a period of 24 days within which to complete the survey. Reminders were sent to respondents twice weekly, and in some cases thrice weekly, from the start to the end of the data collection process. The online survey was officially closed on June 7, 2014. The total number of surveys answered was 412. In terms of survey responses from respondents, the following information is deposited in Table 1:

Table 1
Response rate for elearning survey

Sample Target (N)	Return Rate	% Return Rate
400	412	103%

In terms of complete and partial survey responses, the following is revealed in Table 2:

Table 2

Complete/incomplete responses for elearning survey

Sample (N)	Complete Surveys	Incomplete Surveys
412	358	54

Results

The survey which was carried out, in accordance with the research aim, questions and objectives, revealed favourable findings. These findings are presented, analysed and discussed below.

Question 1

Question 1 focused on whether or not students were from the capital city of Guyana (Georgetown). Figure 2 presents the responses to this question.

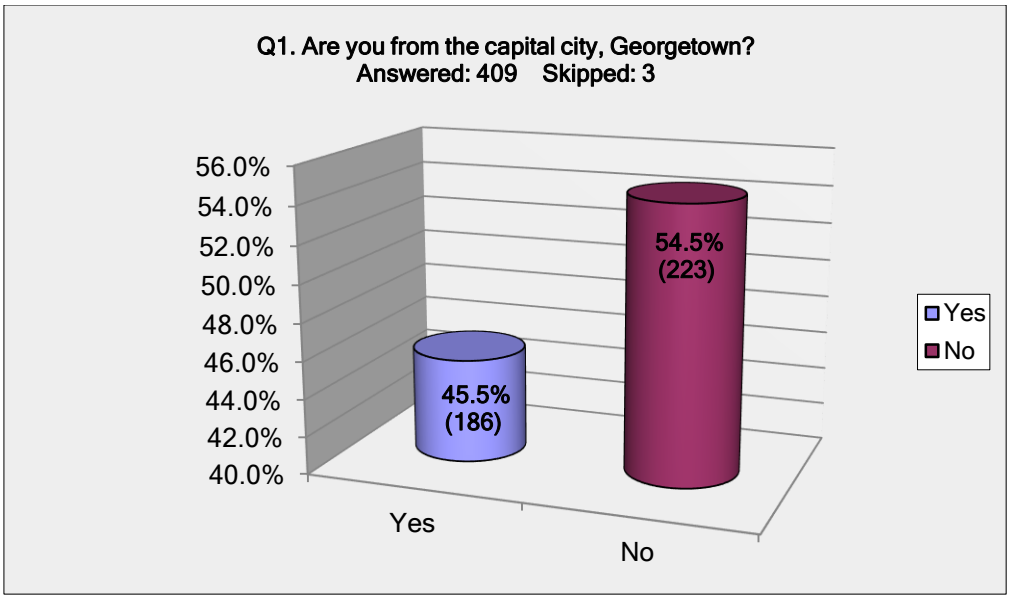

Figure 2: Number of students who are/are not from Georgetown.

Question 2

Question 2 wanted to find out the number of students who resided in Georgetown. Figure 3 obviates the answer to this question.

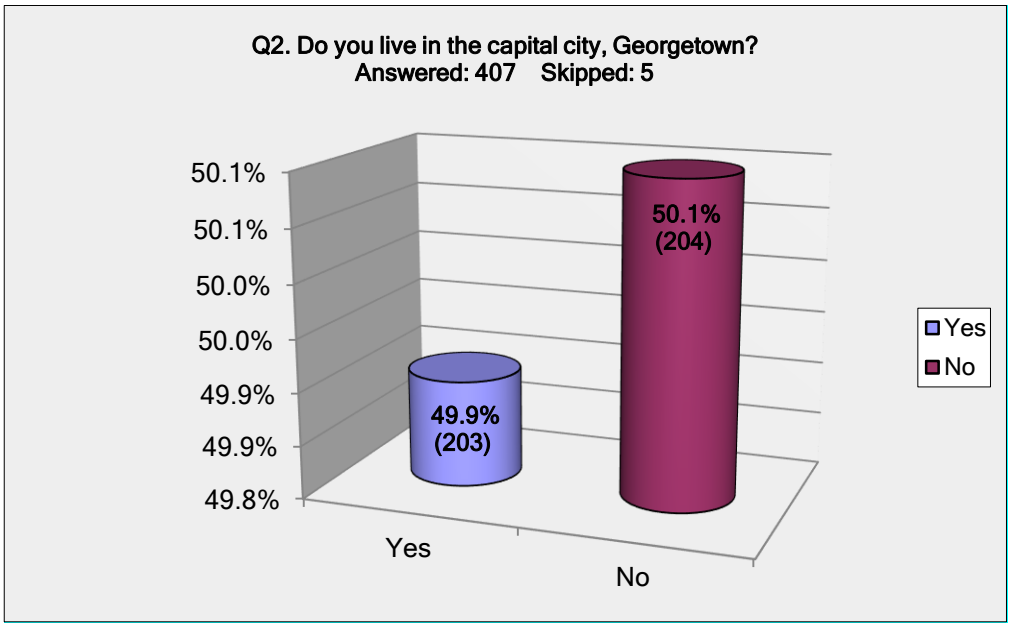

Figure 3: Number of students who do/do not live in Georgetown.

Question 3

Question 3 dealt with accessibility of education at UG for students. Figure 4 highlights the various answers to this question.

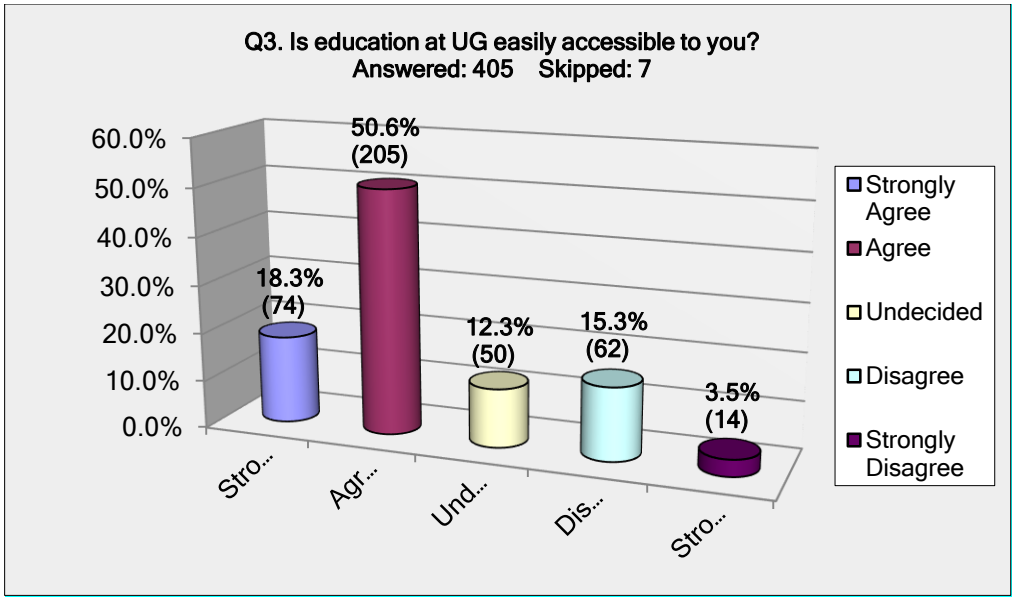

Figure 4: Accessibility/non-accessibility of education at UG.

Question 4

Question 4 hovered around the learning-teaching quality at the UG. Figure 5 indicates the various answers deposited by students.

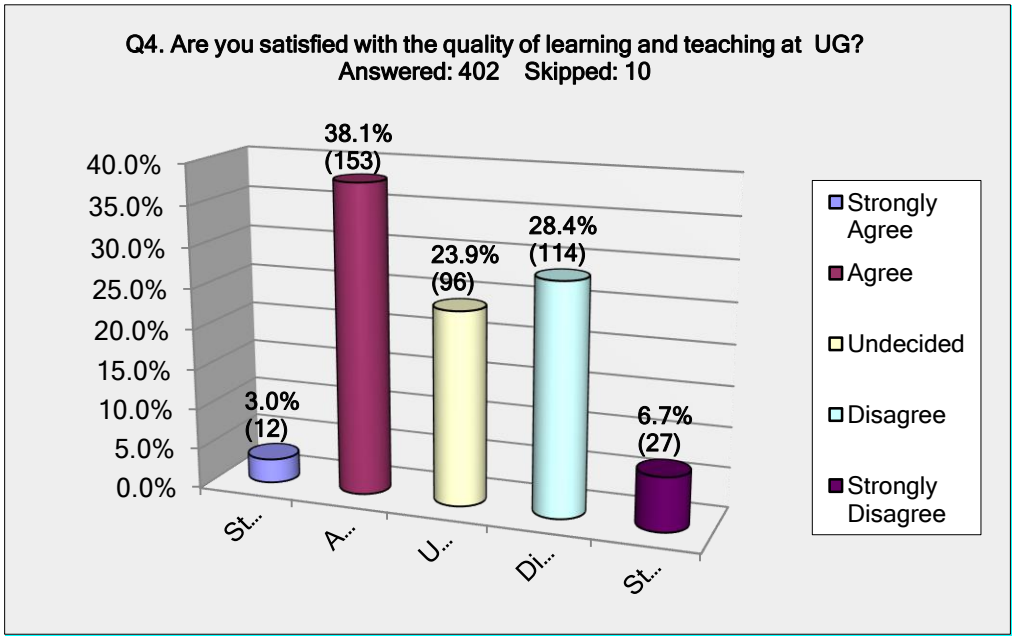

Figure 5: Learning and teaching quality at UG.

Question 5

Question 5 centred on what students feel could be done to improve learning and teaching at UG. The specific question was the following: "*What do you think can be done to improve learning and teaching at UG?*" This was an open-ended question and, in some regards, was a follow-up to the previous one (Question 4), which sought to gain insights on students' perceptions of quality learning and teaching. From the **80.3%** who did respond to this question, most of them are concerned with four main issues: (1) lecturer-student-content interaction; (2) active student participation; (3) their different learning needs, and (4) the learning-teaching tools and facilities.

Question 6

Question 6 hinged on students' familiarity with elearning/technology-based education. Figure 6 represents the students' answer to this question.

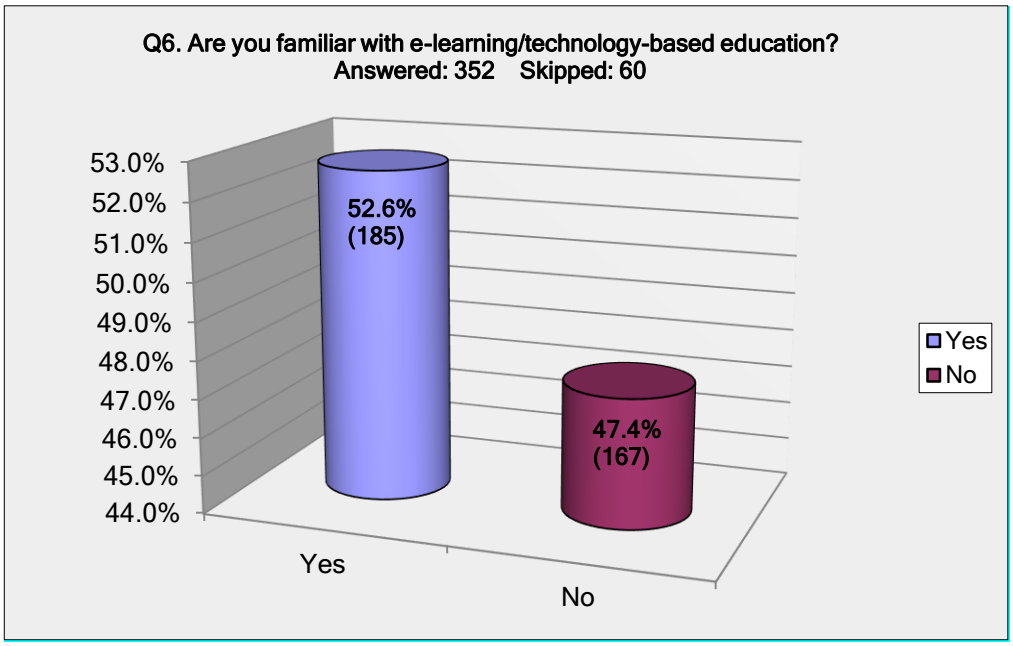

Figure 6: Students' familiarity/non-familiarity with elearning.

Question 7

The emphasis of Question 7 was on students' feelings about elearning/technology-based education. The specific question was the following: "*How do you feel about e-learning/technology-based education?*" This was an open-ended question and, in some regards, was a follow-up to the previous one (Question 6), which sought to gain insights on students' stance on elearning. From the **70.1%** who did respond to this question, the main issues highlighted by students are (1) accessibility, (2) cost effectiveness, (3) effective teaching tool, (4) improvement of student outcomes, and (5) flexibility.

Question 8

The focus of Question 8 was on whether or not students thought that elearning could actually enhance learning and teaching at UG. Bearing in mind their responses to Questions 6 and 7, it was now time for them to decide. Figure 7 portrays the responses to this question.

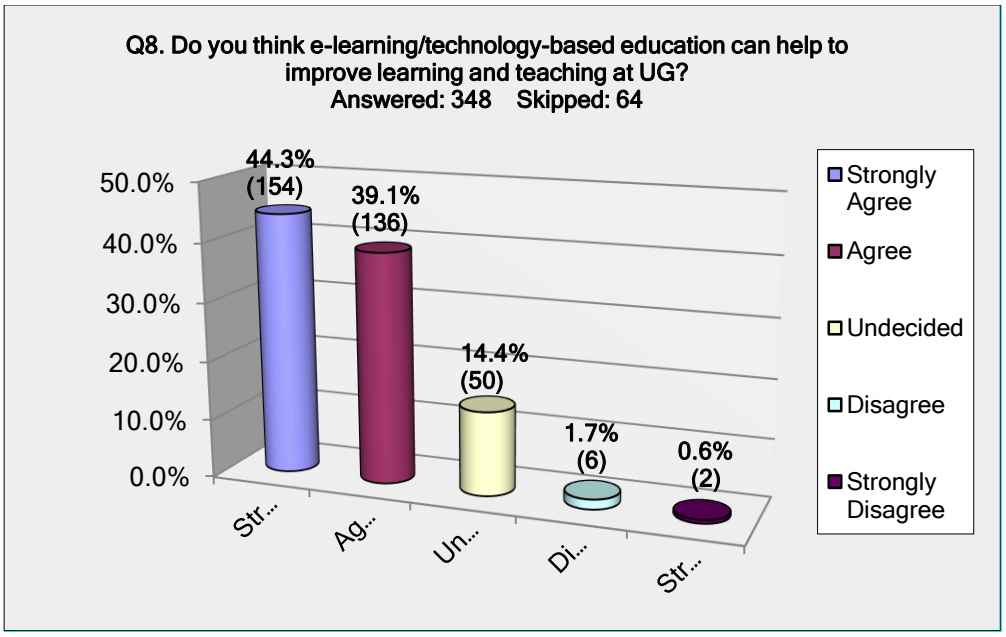

Figure 7: Students' convictions on elearning for the UG.

Question 9

The centre of attention for Question 9 was to determine whether or not students were ready for elearning. Figure 8 portrays those answers to this question from only **185** students (*see Analysis and Discussion section for explanation*).

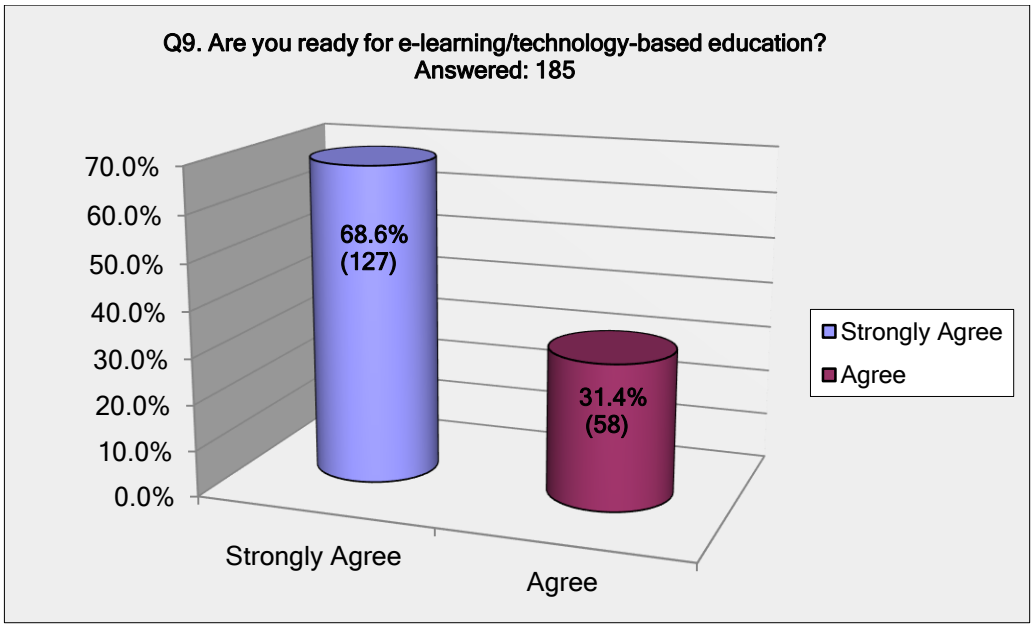

Figure 8: Students' readiness for elearning at the UG.

Question 10

The focal point of Question 10 was to authenticate what form of elearning students desired. Figure 9 shows evidence of those responses from the sub-sample (185 students).

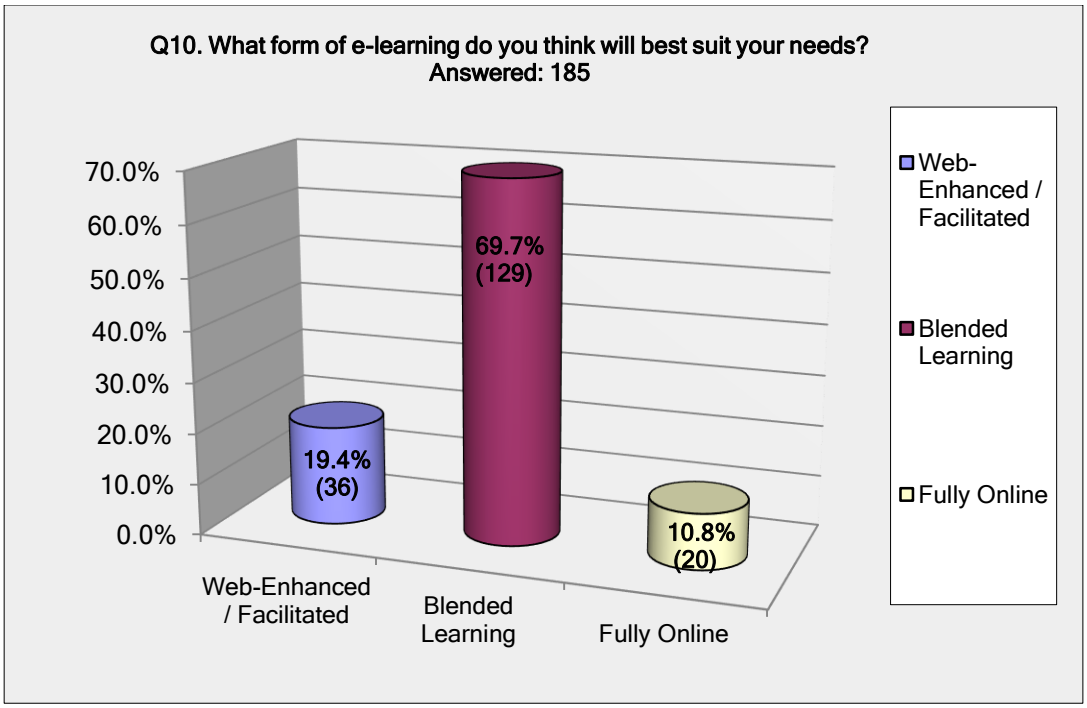

Figure 9: Students' preference for form of elearning .

Analysis and discussion

In Question 1, as can be seen from Figure 2, the statistical results are very important, clearly showing that the majority of the students within the given sample are not from the capital city. This can either mean that these students have to travel on a daily basis to get to the University, or that students have to move to the capital city – either to stay with family or to rent suitable accommodation – to be able to get to classes easily.

In Question 2, as can be observed from Figure 3 above, and similar to Figure 4, the majority of the students in the given sample do not live in Georgetown. This therefore means that these students have to travel on a daily basis to get to the University. Comparing the information presented in Figures 1 and 2, that since 54.5% of the students are not from Georgetown (Figure 2), and 50.1% of them do not live in Georgetown (Figure 3), it can be assumed that **4.4%** of them have moved to Georgetown to access the University. This percentage difference is reflected in the percentage of students who are from Georgetown (45.5%) (Figure 2), as against the percentage of those who are living in Georgetown (49.9%) (Figure 3).

In Question 3, as highlighted in Figure 4, while it is obvious that the majority of the respondents find education at the UG easily accessible, the fact cannot be erased that a considerable portion of students does not share this view or is uncertain about this. This can only mean that all students at the UG do not have equal access to education. Accessibility is a pre-requisite for good educational practices (ALA, 2014).

The second part of Question 3 required students to elaborate on their chosen answer. From the **69.6%** who did respond to this second part of the question, the main issues addressed are (1) easiness of accessibility, and (2) difficulty of accessibility.

It is important to highlight that the issues of 'accessibility' and 'distance' are very important to this study, and to the delivery of quality education, as highlighted in the literature reviewed. In Guyana's educational context, many students who attend the University do not live in

Georgetown, where the main campus is, while some even live in the hinterland areas. Being at such a considerable distance from the campus, where F2F instruction is the rule of law, students' learning process can be frustrated. The findings above do validate this position, in conjunction with the responses from students, suggesting that there is room for improvement with regard to making education accessible to all students. In these enlightened times, ICTs can be used as the vehicle to transmit this education at a distance, making it accessible to all.

Since no previous study has been done on learners' satisfaction of pedagogical practices, Question 4 and its corresponding responses are very significant. As is evidenced from Figure 5, it can safely be posited that the majority of students in the given sample are not satisfied with the quality of education at the UG, which is cause for concern and the impetus to promote change.

The second part of Question 4 had to do with students expanding on their answer selection. From the **71.4%** who did respond to this second part of the question, the prevailing themes obviated are (1) satisfaction about learning-teaching quality, (2) doubts about learning-teaching quality, and (3) dissatisfaction about learning-teaching quality.

It is worthwhile to note that the learning and teaching quality within an educational institution can only be enhanced if there is commitment on the part of teachers (Biggs & Tang, 2007). This pledge involves continual growth and development in their areas of specialisation (Mizell, 2010) through transformative reflection (Ramsden, 2003). For students to learn successfully, teachers much teach successfully. For this to happen, there must be a mutual collaboration for improved pedagogical practices. The findings do suggest that there is room for development of the learning and teaching quality at the UG. If students are to improve their learning outcomes, then the quality of education delivery must be very high (Hattie, 2009; Biggs & Tang, 2011).

Question 5 revealed four issues that were of particular concern to students. With regard to 'lecturer-student-content interaction', it wouldn't be unfair to say that these are the three protagonists of the learning-teaching process. The fact that respondents have highlighted this issue indicates that it is of concern to them. For students to improve their learning outcomes, and be able to engage in knowledge application, there must be an alignment among these principal actors (Laurillard, 1997; Moore, 1997; Wenger, 2001; Anderson, 2004).

With respect to 'active student participation', students have also signalled this as a burning issue. In the real world, students are expected to be engaged in team tasks in order to construct knowledge and negotiate meaning. This is in keeping with 'constructivism' (Piaget 1928; Vygotsky 1930; Dewey, 1938; Bruner, 1973; Jonassen, 1999). It is in this light that Vygotsky (1978) developed 'social constructivism'. All learning is social. For students to learn better, they must interact with each other. By interacting with each other, they will construct knowledge and derive meaning from the world around them. In the current learning and teaching settings at the UG, there is not sufficient opportunity for enhancing interaction, considering that teachers and learners can only do so much during their F2F interaction time.

With reference to 'diversity of student learning needs', this is yet another important plea from respondents. Students are given tasks and they are expected to complete them, whether they 'understand' or not. Such a practice is counter-productive to student learning, and will have direct impact on their learning outcomes (Biggs & Tang, 2007). Constructivism (Wilson, 1997; Tapscott, 1998; Vygotsky, 1978; Biggs & Tang, 2011) can respond to student learning needs and address student learning diversity.

Concerning 'facilities/learning-teaching tools', Ramsden (2003) affirms that there must be appropriate facilities for engaging with students at their level of understanding. To optimise student learning, consequently, there must be an immediate improvement to the UG's facilities

and to learning and teaching. The findings highlight that students are very concerned about the quality of learning and teaching, and steps should be taken to address these issues.

Question 6 was a very important question for students, since the emphasis of this research paper is on implementing elearning practices at the HE institution. As can be seen in Figure 6, while there are a greater percentage of students who possesses knowledge of elearning, the percentage of students who do not have this familiarity does not contrast sharply, only by a difference of **5.2%** (18). Even though the percentage of the sample familiar with elearning is very encouraging, the percentage who does not know of it is of great concern. It could also mean that those who responded negatively simply had a basic understanding of elearning, but no hands-on experience with it. Such findings only underscore the need for students to have prior knowledge of any new educational initiative before it is adopted and implemented.

The second part of Question 6 centered on students providing examples of their understanding of elearning. From the **44.9%**who did respond to this second part of the question. The two main areas highlighted are (1) familiarity with elearning, and (2) non-familiarity with elearning.

Since the aim of this research is to explore the potential of using technology in educational delivery and its implementation at the University of Guyana, all of the responses given are of paramount significance. They ratify the need for all concerned parties at the UG to ensure that students are familiar with the use of technology and its tools to aid learning (Lam & Bordia, 2008), if a successful implementation of elearning practices is to be engendered.

Question 7 revealed five issues that were of primary concern to students. The issues of 'accessibility' and 'flexibility' (Moore 1991, 1997; Raturi et al, 2011b) have been highlighted as one of the benefits of elearning by respondents. Considering, from the myriad of answers, that many students are geographically distant from the University, and that a very large number of them are part of the working class, they would prefer for education to not only be accessible to them, but also flexible. Such a claim is in accordance with what is embraced by Moore (1991, 1997) concerning 'transactional distance'.

A 'cost effective' education is highlighted by learners in many studies in HE (Lee & McLoughlin, 2010; Lai, 2011; Raturi et al, 2011b). Many students today cannot afford to pay for HE, and this is also the current situation at the University. Many students access student loans in order to cover their tuition (UG Registry 2010, 2014). Given the economic situation within the country, a 'cost effective' education would be a welcome reality, and such a gesture could see an influx of students registering for tertiary education.

Respondents believe that elearning is an 'effective teaching tool', and they are not mistaken. This is a fact, based on empirical evidence from studies done about the transfomative potential of elearning to engender significant educational experiences (Lai, 2010; Raturi et al, 2011a; Raturi et al, 2011b; Gaffar, Singh & Thomas, 2011; Laurillard, 2012). The fact that many educational institutions are quickly adopting an elearning initiative is proof that it is efficient. Since elearning is effective, as endorsed by the literature, students also believe that it will lead to an 'improvement of student outcomes'. Constructivism does support ICTs in educational practices (Biggs & Tang, 2011). In elearning, students are also given the freedom to be involved in knowledge construction and application (Lam & Bordia, 2008; Hattie, 2009).

In Question 8, the findings are significant because they corroborate the previous two questions (Questions 6 and 7) that students feel very strongly about having elearning practices integrated into the didactic process at the UG. From the data, the highest percentage recorded is for those who strongly agree, followed by those who agree, those who are undecided, those who disagree, and lastly by those who strongly disagree. More than likely, from the way that Questions 6 and 7 were answered, it would not be unfair to suggest that those students *who* have misgivings about

technology in the learning environment were those that responded to 'Undecided', 'Disagree', and 'Strongly Disagree'. In essence, there is a general positive perception towards elearning. In other words, the respondents for this question (Question 8) have signalled that elearning can certainly have a positive impact on the pedagogical processes at the UG. Such revelations are valid.

In Question 9, the point must be emphasised that this question was a very important question for students to answer, since it is one of the research questions for this study. 347 students answered this question. Based on the figures obtained, 72.0% of the respondents (250) are ready (strongly agree/agree) for elearning, 5.7% of them (20) are not yet ready for it (strongly disagree/disagree), and 22.2% of them (77) remain unsure as to whether or not they are ready for it. These findings, though, are 'inconclusive'. A careful examination of Question 6, which focused on students' elearning familiarity, exposes that only **52.6%** of participants (**185**), replying to that question, expressed familiarity with elearning, while the remaining 47.4% of them responded in the negative. As only **185** students confirmed their familiarity with technology-based education, it therefore means that only they can signal their readiness for elearning. Figure 8 portrays those answers to this question from the **185** students. For this specific sample, though quite small, it is clear that are all in one accord for the advent of technology-based education at the UG.

These findings are significant since they answer the research question, substantiating that students who are familiar with elearning consider it valuable; it is not surprising, therefore, that these students are ready for elearning at the UG. It cannot be ignored that these respondents are prepared to have technology integrated into the educational process. That is major. The above results, concerning elearning readiness of the 185 students, as considerable as they may be, are also inconclusive, because they only capture the selections of a sample from within that sample target (hereinafter referred to as *sub-sample*) (Leedy & Ormrod, 2013). In order to make these findings 'conclusive', it would be advisable to ask such a question within the next three years or so from now, with the objective of authenticating students' understanding of, and readiness for, elearning. They would now be in a better position to take an informed decision about their readiness for it.

The second part of Question 9 hinged on students depositing reasons concerning their readiness for elearning. Once again, only the **185** students who claimed familiarity with elearning (Question 6) can give valid reasons to support their claim. Given that the purpose of this study is to explore the potential of using technology in educational delivery and its implementation at the University of Guyana, each of the answers deposited is pertinent towards this end. In fact, it is quite clear that students are desirous of moving into the 21st century with sound educational practices. With specific references to those students who claim readiness for elearning, there's a longing for a connection and connectivity (Siemens 2004, 2008) with their learning and their real-life experiences. This is yet another very important concept in the learning-teaching process which has found relevance in elearning. Learning is all about understanding the world around us and making connections with them (Downes, 2012). Elearning and the WWW create networks and learning communities in which students can connect with each, thus experiencing a richer learning experience (Siemens, 2008; Downes, 2012).

Question 10, similar to Question 9, was another essential one for students to answer, since it is another of the research questions for this. In view of the fact that the primary axis of this research is to investigate the practicality of elearning at the UG, it is only wise to determine the form of elearning that would best meet students' needs. Since the sub-sample of **185** students pointed out their acquaintance with elearning/technology-based education, it therefore meant that only they were capable of deciding on the form of elearning that best suited them. For this specific sub-sample, it therefore follows that for their preference for the form of elearning, their first choice is 'Blended Learning', followed by 'Web-Enhanced/Facilitated', then by 'Fully Online'.

The percentage of students who chose 'Blended Learning' is considerably higher than those who chose 'Web-Enhanced/Facilitated' and 'Fully Online'. In fact, the percentage of students in support of 'Blended Learning' is almost four times that of those who opted for 'Web-Enhanced/Facilitated', and almost seven times that of those who selected 'Fully Online'. These results are important because they answer the research question, corroborating that at least some students are indeed ready for a specific form of elearning at UG. Even though they may seem to prefer one specific form over another, the fact cannot be effaced that they all have signalled their desire to have technology incorporated into the learning-teaching process. That is significant.

Stemming from the above results, concerning the preference of elearning form of the 185 students, they are also 'inconclusive' as weighty as they may be. They are inadequate because they do not give a panoramic view of the choices of the entire sample target, but that of a sub-sample (Leedy & Ormrod, 2013). To make these results 'conclusive', another survey could be carried out, at a later date. Students would now be in a better position to choose, and have consensus for, an elearning form.

The second part of Question 10 hovered over students explaining why they chose one form of elearning over another. All **185** respondents did answer this question. Based on the responses, the students are even more eager to embrace 'Blended Learning', since they feel that the F2F component should not entirely be thrown out the window. Their claim is justified because F2F teaching is still a powerful means of stimulating learning (Bershin, 2004; Sheridan, 2009; Raturi et al, 2011b; Livingstone, 2013). Since theory is synonymous with practice, in today's educational context, given that many programmes are practice-based, 'Blended Learning' would be highly favoured and considered a welcome reality. Some prefer to start out with 'Web-Enhanced/Facilitated Learning', citing that this would help them to get comfortable with the virtual environment, motivating them to make the eventual transition. Yet still, some prefer 'Fully Online', because they wish to avoid the hassle of travelling to campus, especially in cases where they show up for classes, only to find out that they have been cancelled. Taking into consideration that the intention of this research, each of the replies provided, towards this end, is relevant.

A summary of the findings of this study is given below:

1. **54.5%** of respondents are not from the capital city, Georgetown.
2. **50.1%** of the participants do not live in the capital city, Georgetown.
3. **68.9%** of the respondents claim that education is easily accessible to them.
4. **41.1%** of the students are satisfied with the quality of learning and teaching at the UG, **35.1%** disagree, and **23.9%** are undecided.
5. A number of issues must be addressed to improve the learning-teaching process.
6. **52.6%** of the participants are familiar with elearning, while **47.4%** are not.
7. **70.1%** of the students welcome it, while **29.9%** have reservations, or are unsure.
8. **83.4%** of the respondents agree that elearning can improve the pedagogical situation at the UG.
9. **100%** of the sub-sample is ready for elearning.
10. **69.7%** of the sub-sample, who expressed familiarity with elearning, prefer 'blended learning', while it is **19.4%** for 'web-enhanced/facilitated', and **10.8%** for 'fully online'.

Concluding remarks

This research has centred its attention on students' perception of the potential of elearning practices at the University of Guyana. With reference to the research questions, aim and objectives of this study, the results have shown that the students are generally ready for elearning by blended mode. Further to these results, other important findings arising from the data collected reveal the following: while some students appear to be more satisfied than others, in terms of the learning-teaching quality, most of them concur that the situation can be improved and achieved through the use of technology; students would like to be able to study at their own pace and time, given their busy schedules; many students from the hinterland and interior regions of the country have been forced to move to the capital city in order to access education; those who cannot make the transition have to travel, on a daily basis, to get to campus; students complain that they sacrifice so much to get to classes, only to find out that the class has been cancelled.

All of the above issues can be addressed through the adoption of elearning practices at the UG: the quality of education is likely to be improved with the integration of technology; students will get their money's worth; they will be able to control the pace of their learning; they will be able to access their learning tools and resources without even setting foot outside of their homes, allowing them to save on transportation costs, and sparing them the hassle of running to classes.

These are the issues that confront students and these are the possible solutions that can be achieved through the incorporation of technology into the pedagogical practices of the UG. For this to happen, all stakeholders have to get on board and create the necessary policies and plans to design, implement, institutionalise, and sustain this new initiative to suit the UG's educational context. It is now left up to the administrative body of the University to create a revolution in its educational practices and pave the way for high-quality learning, accessible to all students.

Significance of the study

This study is significant, since it is the *first of its kind* to be done about the UG. While the latest research done in the area of elearning at UG (Gaffar, Singh & Thomas, 2011; Singh & Gaffar, 2013) sheds light on the degree of lecturers' readiness for the adoption of Web 2.0 in their pedagogical practices, there is currently no documented research about the UG, in Guyana, that (1) underscores students' position about accessibility and equal opportunity in education; (2) highlights the extent of students' satisfaction of current pedagogy and why there should be improvements; (3) brings to light students' feelings about elearning and what it would mean for them, and (4) underlines student preference for a specific instructional delivery mode. Such findings, once carefully considered, can only have positive far-reaching consequences for the HE institution.

Limitations

One notable limitation was that some of the respondents did not answer certain parts of the two-part questions; in fact, quite a number of them refrained from answering, the highest being in excess of 100. It would have been worthwhile had they all responded. Another limitation of this study was due to a lack of awareness regarding elearning (Question 6). Some students could not respond, in an informed way, to the form of elearning they desired. Based on the findings revealed, nearly half of those who answered the question on elearning familiarity (47.4%) claimed that they were not acquainted with elearning. Due to this deficiency, their judgement about the kind of elearning was impaired. Further, even though the students' response rate superseded the sample target, it would have been good if a lot more students had participated, thus giving an even better picture of their readiness for elearning.

Recommendations

One recommendation would be to have a 'Centre for Leaching and Teaching' and a 'Quality Enhancement Team/Department/Committee' with responsibility for all areas of the elearning initiative: design, implementation, institutionalisation, and sustenance, and sensitization, training and support for students, among others. Another recommendation would be to adopt *Moodle* (a free and open source software) as the preferred LMS, since this would best suit the UG's educational context. This is the recommended LMS for developing countries (Whelan & Bhartu, 2007; Hogan & Kedrayate, 2009; Raturi et al 2011a, 2011b). In relation to the suggested LMS, it would be advisable to begin the process with 'web-enhanced/facilitated learning', before officially adopting 'blended learning' as the preferred form, since 47.4% of students indicated their lack of familiarity with elearning (Question 6). A gradual transition from 'web-enhanced/facilitated learning' to 'blended learning', after some time, would only serve to strengthen students' and lecturers' confidence in such an environment.

Further research

Two of the many areas that could be further researched are: (1) The focus could be on the type of LMS to be used, and the kind of Web 2.0 technology features that students would like the LMS to possess, and (2) Since 47.4% of the respondents are not familiar with elearning, it would be worthwhile to conduct a longitudinal study, at a later date, over a 5-yr period, not only to ascertain their familiarity, but also to ascertain what would be their preferred instructional delivery mode (web-enhanced/blended/fully online).

This research can form part of the existing empirical evidence about integrating ICTs in education, and the need to transform HE learning and teaching. It can be used as a guide for those Universities in developing countries which are considering implementing elearning, and those which are yet to do so.

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About the author

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It is Mr. Livingstone's desire to see the integration of technology-based education/elearning in all pedagogical practices throughout the University of Guyana.

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