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TRANSITIONING TO ONLINE LEARNING: PERCEPTIONS OF PROSPECTIVE TEACHERS IN THE REPUBLIC OF TRINIDAD AND TOBAGO

***Dr.Gerard Simonette**

Centre for Education Programmes, The University of Trinidad and Tobago (UTT), Point Lisas Campus, Trinidad.

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ABSTRACT

The COVID-19 pandemic has created significant challenges for the worldwide educational community, particularly in universities. Since March 2020, prospective teachers in their final year of the Bachelor of Education Programme at the University of Trinidad and Tobago have been forced to experience a change in pedagogical landscape from daily face to face classes to online learning in order to ensure uninterrupted delivery. This study explores prospective teachers' perceptions of online learning at this tertiary institution. A sample of one hundred and twenty (120) students of the programme, generally between the ages of 18 to 25 was chosen and online questionnaires and focus group interviews were used to collect data. Results indicated that teachers were generally proficient in the use of online technology required for participating in the programme but had varied perceptions on the online experience. The majority of respondents professed strong support for this mode of delivery. Major challenges included technical issues related to functioning of devices and connectivity as well as inability of the technology to assess practical demonstrations of competence effectively. Prospective teachers strongly recommended more professional development opportunities in virtual learning technology and an overall adjustment of the teacher education programmes as areas to be addressed. There is a great likelihood that online learning will form the new pedagogical landscape not only at universities but also for primary and secondary schools in Trinidad and Tobago.

Keywords: prospective teachers, online teaching and learning, perceptions.

INTRODUCTION

Online and blended learning have become commonly accepted pedagogy in education. Especially due to the COVID-19 pandemic, education, more specifically teacher education has been transformed to meet the needs of all students in a virtual environment. Even before this, an increasing number of online university courses have been made available both nationally and internationally. This has been due to global developments in information and communication technologies as well as the need to provide wider access to all students. Additionally, online learning provides professional growth opportunities for teachers and students particularly in isolated, geographical areas. Online teaching and learning have emerged as the alternative and only mode of instruction delivery at universities and other institutions of learning in Trinidad and Tobago. As a result, one of the priorities for higher educational institutions has been to integrate e-learning into traditional modes of learning. As a prelude to this, it is imperative to determine student's perceptions of online learning based on their experiences in an effort to assess the effectiveness of its impact and to improve such offerings to future participants. Traditionally, classroom instruction in tertiary institutions has been characterised as being lecture-oriented and teacher-centred, requiring passive learning by students, while online instruction is often conceptualized as student-centred and requiring active learning. Studies by Lundberg, Castillo-Merino and Dahmani (2008) have reported a dramatic increase in the number of online courses given by universities over the past five years. Flexibility and access are the two major advantages. In Trinidad and Tobago, an increasingly large number of students are now opting for online education across various disciplines, education levels and subject areas. Online education has made it possible for students with busy lives and limited flexibility to obtain quality education. Classes can be offered across a wide geographical span and even worldwide through a single internet connection (Paul & Jefferson, 2019). Online education can be described as an "on demand" service providing educational content in a variety of forms which include virtual classrooms, webinars, online courses and active discussion forums. Recent studies have been carried out to determine whether traditional face to face teaching or online learning is better and more productive. These have found that the performance of students is much better in online learning or even in hybrid learning. (González-Gómez, Jeong & Rodríguez, 2016; Lockman & Schirmer, 2020; Pei & Wu, 2019). However, the success of online learning has also been plagued with unresolved, lingering concerns. Among these are the lack of social interaction and interpersonal linkages (Chen, 1997), flexible content delivery (Saledo, 2010) and concerns of integrity and validity (Yilmaz, 2017). There is a lack of research information about the experiences of students of higher education in the Caribbean and in the local context. These experiences and perceptions of teachers, as implementers of a digitized curriculum must be considered by policy makers and planners at the university and other institutions when creating a system of guidelines to govern online learning at present and in the future.

Statement of the Problem

The Bachelor of Education programme was started in response to a mandate from the Government of Trinidad and Tobago through the Ministry of Education to train teachers for all levels of the school system. The programme is a pre-service programme for both full time and part-time students. Four main areas of study comprise the learning programme for prospective teachers: general education or content courses, pedagogy courses which provide general pedagogical knowledge, the practicum which provides specific subject pedagogical content knowledge and other content courses for particular areas of specialization. Since the inception of this programme until March, 2020, academic sessions were primarily conducted for all courses of study using a traditional or face to face

***Corresponding Author: Dr.Gerard Simonette,**
Centre for Education Programmes, The University of Trinidad and Tobago (UTT), Point Lisas Campus, Trinidad.

mode of delivery. Now, the challenge facing prospective teachers has been the urgent and unexpected transition from face to face university courses to being taught online. While many benefits and preferences abound in order to bridge the gap and ensure minimal disruption to educational experiences, the transition to online learning is also accompanied by limitations to prospective teachers who have been acculturated differently throughout their preceding years of the teacher education programme. This study explores prospective teachers' perceptions related to the implementation of online teaching in their course of study at the University of Trinidad and Tobago. It is against this background that this study intends to investigate undergraduate student teachers' perceptions, preferences, readiness and suggestions for online teaching and learning during the Covid-19 pandemic.

Research Questions:

- What are teachers' perceptions of online learning and traditional classroom learning at the University of Trinidad and Tobago?
- What are the most commonly used assessments and interactive activities used in online learning?
- What skills and competencies do teachers possess to enable them to use online learning platforms?
- What are the major perceived challenges that prospective teachers face in their participation in online learning activities?
- What recommendations are made for improving online learning and assessment activities for prospective teachers at the University of Trinidad and Tobago?

REVIEW OF LITERATURE

A growing number of students find the traditional classroom mode of teaching to be restrictive, inflexible and impractical. Schools are now providing comparatively more effective teaching using the Web and this shift in pedagogical medium is forcing academic institutions to rethink the variety of ways in which course content can be delivered. (Paul & Jefferson, 2019). Driscoll, Jicha, Hunt, Tichavsky and Thompson (2012) have found that literature on the efficacy of online courses is expansive and divided. Online learning is not an entirely new phenomenon. The University of London initiated correspondence courses or distance learning programmes from as far back as the 1800s whereby communication was dependent on postal communication. Since then, educational communication mechanisms have evolved considerably throughout the world and non-traditional study has grown through technological advancements to what we label as online learning, e learning, virtual learning or distance education today. According to Smart and Cappel (2006) the concepts of "e-learning," "online learning," and "web- based learning" have always been used interchangeably. Kharve and Gogia (2016) describe online learning as learning by electronic means involving the use of computer, mobile phone or other electronic devices and accessing the internet. There are two types of online learning: the synchronous interactive settings where learners meet in real time and communicate content, concepts and experiences; and asynchronous learning where participants interact with prepared materials and communicate with others at different times. Both types of online learning depend critically on properly functioning internet -based resources and support systems which allow anybody with connectivity to access anywhere and learn with seamless access from across the globe. Despite these advances in technology, learning has been mostly done traditionally (face-to-face) in developing countries; sometimes with some degree of blended learning which combines use of the two. Therefore, the wholesale adaptation to online learning requires certain behavioral changes and institutional changes to redound to maximum benefit for both the learner and teachers. Throughout educational systems, not all students and lecturers are adequately conversant and proficient on how to participate in online learning platforms. (Olayemi, Adamu & Olayemi, 2021).Previously, before the COVID-19 era, research indicated that computers were underused as instructional tools. The majority of teachers used internet technology to support their teaching, but much of this occurred outside of class time. (Bebell et al.2004). Hall and Hord (2001) identified three major concerns which teachers faced when confronting new technologies, particularly in mathematics teaching-personal concerns about how technology affected them, management concerns about having control and managing technology-enabled classroom environments and technology concerns related to their level of comfort and familiarity with technology. New research suggests that these major concerns may have since changed. A study conducted by Ramsook and Thomas (2019) in Trinidad and Tobago among beginning teachers revealed that teachers seemed to have transcended some of these previous setbacks and were quite satisfied with online teaching, utilising new technologies of this time. However, the study indicated that there were many new factors which need to be addressed if online teaching is to be considered a viable alternative. Advantages of online learning in teacher education include the opportunities provided to learners to utilize resources that might not be locally available, timely support and feedback systems and opportunities for reflection. Despite possible skepticism or perceptions of online learning as being teacher-centred, impersonal or lacking connection, research by Bryant & Bates (2015) suggests that online tools and methods can facilitate social constructivist learning in online teacher education programs by optimising interaction through effective synchronous and asynchronous tools. In an online environment, social constructivism can be achieved through podcasting, posting Google Documents accompanied by frequent and rigorous feedback. New paradigms of teaching and learning call for alternate forms of assessment. On line learning facilitates greater focus on formative assessment. More effective formative assessment can be engineered through online strategies and enrich student commitment to succeed because of consistent, immediate, interactive feedback in real time with correctives at each stage in the learning process. (Baleni, 2015). Olayemi et al., (2021) examined the perception and readiness of undergraduate students in Nigeria towards online learning. On the positive side, the study revealed that the majority of respondents claimed to be conversant with online learning with a high level of readiness. The findings also revealed that most respondents indicated high levels of ICTs skills and competencies needed for online learning. On the negative side, fear of high cost of data, poor internet services, erratic power supply, inaccessibility to online library resources and limited access to computer were the major perceived challenges to effective online learning. Based on these findings, their study recommended that Nigerian universities must as a matter of necessity improvise means through which knowledge, delivery and general learning activities can be achieved seamlessly and at the lowest cost to the students even while they are at home. Teachers reported positive perceptions towards an online tutoring programme for elementary mathematics by Whetstone et al. (2014) when their confidence and ease of use of online facilities to supplement their mathematics instruction were examined. It should be noted that Smart and Cappel (2006) had previously identified some limitations voiced by online teachers for practical activities in some subjects such as mathematics. Paul & Jefferson (2019)compared the effectiveness of online instruction with traditional instruction in an environmental studies class over an eight (8) year period. The purpose was to determine which modality generated better student performance. There was no significant difference in student performance between on-line and face to face with respect to gender or class rank. This study highlighted the

potential of online learning for teaching environmental science core concepts in future endeavors. Gopal, Singh & Aggarwal (2021) determined that four factors were essential for high levels of satisfaction and performance in online courses, particularly during the epidemic period of Covid- 19. These include the quality of instructor, course design, level of prompt online feedback and the expectations of students and must be factored into the design of today's online experiences. A systematic review of literature by Moore-Adams et al. (2016) stated that there is a clear need for further empirical research on teacher preparation for teaching online. In addition, the education community may need to examine ways in which best practices for traditional teacher preparation can inform best practices for teacher preparation for the virtual realm. Online teaching is a new realm because teachers must have specific knowledge of pedagogy, content and technology as well as an understanding of how these elements interact for teaching in virtual environments. What is needed is "technological pedagogical content knowledge." However, online learning comes with its potential limitations. One limitation identified by Chen (1997) is reduced social interaction, which is an inherent advantage of face to face learning. According to Chen, interactions not only allow students to assess their own learning but also assist them to develop a genuine sense of community among themselves. This community, absent in on line learning experiences, can sometimes increase students' levels of confidence and their ability to alleviate problems. Interpersonal linkages create support networks among students and they may feel more comfortable and learn easier as well as acquire better understandings of content through interaction. Smart and Cappel (2006) concluded that asynchronous e learning, which involves less social interaction, was not totally effective as a 'stand-alone' method to deliver technical training. E-learning eliminates classroom interaction time, where a significant amount of 'real learning' takes place. One of the main limitations of online learning is limited communal synergies. Atchley, Wingenbach & Akers (2013) suggest that online learning can lack feedback for both students and instructors and as a result student retention, satisfaction and performance can be compromised. Another weakness of online learning is its rigour and intensity of process which may allow online learners to quit more easily. The research shows that online students are more likely to quit class if they do not get immediate results, if they do not like the instructor, the format or the feedback whereas the classroom setting provides more motivation, encouragement, direction and peer support through its socially interactive advantage. Saledo (2010) highlights the advantage of traditional classroom teaching as one of providing real time face to face instruction which allows for immediate teacher responses and more flexible content delivery. Online instruction dampens the learning process because students have to place limits to their questions and interaction time to grant the teacher and their peers equal time to respond. Xu and Jaggars (2016) contend that traditional or face to face teaching is a well-established modality. It has been refined over several centuries as a well-established instructional medium with expectations of proficiency in teaching style and structure that are clearly defined and understood. Thus, it contains numerous benefits not found in its online counterpart. Henriksen, Creely, & Henderson (2020) have suggested that some educators struggle with the shift in pedagogy from traditional to virtual modes of teaching and therefore, moving pedagogically from one medium to another is not always a smooth transition. The COVID-19 situation has forced urgent transitions, and without adequate opportunities to design for a new medium, some instructors have struggled. A study done in Turkey by Yilmaz (2017) identified common problems faced by instructors in the online assessment process. Among these are the time and effort that are needed to prepare and evaluate formative tests and assignments as well as teachers' inability to prevent cheating or other forms of academic dishonesty on online tests. In assignments and projects, the integrity and validity can be severely compromised by students using the same assignments and copying from each other or copying and pasting random items found on the internet as representations of their own work (Yilmaz, 2017).

METHODOLOGY

A mixed method research design that employed the use of questionnaires and focus group interviews was used to investigate the problem identified; both quantitative and qualitative approaches were employed for collecting and analysing data. Mixed-method approaches originate in the two major research paradigms: quantitative and qualitative (Creswell, 2014). A mixed-method design was adopted in this study to provide generalisation of teachers' views but also a more in-depth examination of the challenges, experiences and recommendations of prospective teachers. Qualitative data collection procedures derived from focus group interviews complement and add clarity to data which have been obtained from administering a questionnaire to a larger, more representative sample (Creswell, 2014). One hundred and twenty (120) prospective teachers, who were final year students of the Bachelor of Education Programme of the University of Trinidad and Tobago were used for this study. Teachers were generally between the ages of 24-35 years. There were five (5) males in the entire sample, reflecting the under-representation of male teachers in the profession at this time. On line questionnaires were used to obtain demographic information as well as obtain data on teachers' preferences for either online or traditional learning experiences. The questionnaire was designed after an elaborate literature review of technical characteristics, benefits and challenges of online learning. Face and content validity were examined by experts in pedagogy and instructional technology at the university. Respondents were required to provide justifications for their choice of preferred pedagogy and respond to items on their perceptions of online learning based on a Likert Scale format. Items on the scale examined perceptions of online learning and assessment, technical characteristics, benefits and challenges of online learning. The questionnaire also elicited the most commonly experienced online assessment strategies as well as prospective teachers' level of comfort with selected technology to facilitate their learning. The instrument was pre-tested and Cronbach's Alpha coefficient r was at a value of 0.83 which was quite acceptable. Descriptive statistics such as frequency, mean and percentages were used to present the findings. Focus group interviews were conducted to obtain qualitative data for the study. Seven focus groups of seven participants each were used. The interviews were guided by a six (6) item interview schedule which focused on personal experiences of online learning at the university as well as teachers' experiences specific to practical teaching activities, which have also transitioned to a strictly virtual medium. Participants identified challenges encountered and provided perspectives on how online learning can be improved in the future at this university.The focus group interview method of qualitative research was selected as an appropriate technique for this study since it allowed for deeper, detailed investigation of specific observable issues or responses. Procedures for data analysis of the focus group interviews included sorting and organizing the data, coding, constructing and reconstructing categories, generating themes and patterns and checking emerging theories. All focus group sessions were audio-taped were transcribed to obtain verbatim accounts by teachers. As advocated by Creswell (2014), major common ideas emerged after comparing the data which indicated prevailing views among prospective teachers in this group.

RESULTS AND DISCUSSION

In this section, the specific responses to each research question are presented in five major sections. Firstly, the results of the survey of 120 prospective teachers' perceptions of online learning are summarised.

Table 1.Prospective teachers' responses on survey items relating to perceptions of online learning.

Survey Items	Teachers' responses
1. Online assessments for courses were easier to access and complete.	Of the 120 respondents, 104 indicated agreement while 16 disagreed.
2. Practical teaching skills are more accurately assessed in the online environment than in the real classroom environment.	32 respondents (26.7%) indicated agreement while 56 respondents (46.6%) indicated uncertainty; 32 respondents (26.7%) disagreed.
3. I am able to access more opportunities for individual feedback on my online work.	52 (43.3%) of the 120 respondents indicated agreement while 68 (56.6%) disagreed.
4. I believe that not all subjects can be effectively assessed through on line.	116 (96.7%) of all respondents agreed while 4 respondents (3.3%) disagreed.
5. Online learning allows the use of more varied study strategies.	Of the 120 respondents, 96 (80%) agreed, while 24 (20%) disagreed.
6. The features of online learning are very easy to use.	90 (75%) of the 120 respondents agreed while 30 (25%) disagreed.
7. I prefer traditional, face to face assessments.	80 respondents (66.7%) agreed while 24 (20%) were uncertain and 16 respondents (33.3%) disagreed.
8. I am less nervous in online examinations.	76 respondents agreed; 44 disagreed.
9. I prefer online assessments over paper and pencil traditional tests.	64 respondents (53.3%) agreed; 24 (20%) were uncertain of their preference; 32 (26.7%) disagreed
10. I encounter greater academic improvement through online learning.	84 respondents (70%) agreed; 24 (20%) respondents disagreed; 12 (10%) were unsure
11. I study more intensely and rigorously in preparation for traditional assessment.	80 respondents agreed; 32 respondents disagreed while 8 were uncertain.
12. I am able to receive more detailed feedback in traditional classes.	90 respondents (75%) indicated agreement; 30 respondents (25%) disagreed.

Results (items 1 and 6) suggest that teachers generally agree to a great extent that online learning is easier to access for all and easy to use. Ease of use as well as access to the teaching resource are important factors that motivate them towards the use of online work. However, teachers appear to be divided on their views of the efficiency of online learning to rigorously address practical skills, especially in classroom pedagogy, the central skills in preparing to be a teacher. The majority had more positive perceptions of assessment in the face to face environment. (2,4). Greater numbers of prospective teachers in response to items 3 and 12 indicated that while online learning does present opportunities for feedback on individual work, more rigorous feedback is obtained through traditional discourse. Items 7, 8 and 9 examined teachers' preference and comfort with the two learning strategies. While participants (63%) generally perceived themselves to be less anxious during online assessments, 53% clearly preferred online assessments over traditional ones, while 66% indicated their preference for traditional assessments in item 7. The results reflected a somewhat divided view which was further investigated in other areas of the questionnaire, presented in Table 2.

Table 2. Prospective teachers' preferences of use of online learning and face to face environment.

Face to Face Experiences		On-line experiences
Preferred by 69 respondents (57.5%)		Preferred by 51 respondents (42.5%)
1.	Opportunities for authentic interaction	1. Opportunities for task engagement
1.	Convenience	2.Flexibility
2.	Greater Structure	3.Greater structure
3.	Fairness	4.authentic preparation for future teaching
4.	Personal appeal	5.avoid tension filled atmosphere

The results of Table 2 suggest a slightly greater preference for face to face teaching and learning experiences (57.5%) than for virtual learning (42.5%) through prospective teachers' responses to the questionnaire. Their responses seem to have validated research by Driscoll, et al. (2012) which has found that literature on the efficacy of online courses is divided. Among the responses obtained in the focus group interviews which supported the preference of face to face pedagogy were "I prefer traditional classroom learning because I want to see and interact. It allows me to be more focused." Another respondent suggested, "I consider traditional learning to be an authentic university experience; I need real interaction with peers for me to learn effectively."

Other responses which justified teachers' choice of face to face environments were:

- "In face to face classes, it is easier to acquire assistance, either from peers or the lecturer"
- "Hands on activities and skill development are rigorously catered for in face to face classes and I feel more compelled to do work in face to face classes."
- "Genuine teacher guidance is only available in face to face classes."
- "Traditional learning allows the teacher to create a bonding with students so that he understands them

"In the focus group interviews, counter-comments which supported the preference of online pedagogy were:

- "Online tasks keep me engaged and the environment is not as tense; we can get immediate feedback without being embarrassed by our peers' responses. There is less anxiety to respond when we are taking a test."
- "The assessments which I have experienced online are easier; open book is a new method which is easier and preferred even though it takes more time to complete. There is no need for cramming."
- "On line teaching and learning gets us familiar with the ICT world in which we live; these experiences have been great because online learning makes us familiar with a heavily online world which we are going to meet during.. and after COVID-19."

While some prospective teachers advocated flexibility and an organized structure as two main reasons why they prefer online learning at the university, others also advocated structure and 'pre-programmed convenience' as the reasons for their preference of traditional teaching. The idea of 'fairness' was one area of much debate in the focus group interviews as both a benefit and a limitation of online assessment. The comments of one interviewee are captured here in relation to this:

> "Online teaching is great but we must address the issue of fairness. Fairness has to take on a whole new meaning. If all parents 'perform their children's assessment for them online' I will not know. That is not fair. Fairness is validity. In face to face teaching, we can suppress opportunities for cheating in tests. I'm afraid that we are limited in doing so when we are on line. It might also not be fair to all students if our teachers have poor levels of competence in online teaching themselves. "

The issue of teacher competency was also examined in a later section of this study.

Table 3. Most commonly experienced online assessment types.

Type of Assessment	Frequency	Percentage
Open Ended (Essay) Response	38	31.7
Multiple Choice Items	42	35
Fill in the Blank items	22	18.3
Oral Responses	14	11.7
Other (Games, Kahoot, etc)	4	3.3
TOTAL	120	100

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Prospective teachers in their final year at the University of Trinidad and Tobago identified the most commonly experienced strategies of content delivery and assessment since their online pedagogy began in March 2020. Almost all 'lectures' were delivered via Zoom while written summative quizzes of different item types as well as games were attempted synchronously on the CANVAS platform. Essay type responses were generally submitted as assignments or within discussion forums and were the most commonly graded assessments. Teachers reported that most summative tests commonly took the form of multiple-choice items and to a lesser extent, short answer responses were used. Prospective teachers generally had positive comments on the use of these assessments noting that they appeared to be "easier to score and allowed for much faster, timely and meaningful feedback than the traditional mode." The immediate, individual feedback on performances on quizzes was also seen as contributing to a more positive learning experience. It was reported that some lecturers incorporated online games like Kahoot as formative evaluations within their classes and these served as intrinsic as well as extrinsic motivators.

Prospective teachers' self- perception of I.C.T competence to enable online tasks.

As presented by the data in Table 4, the majority of prospective teachers perceived themselves as either 'proficient' or 'very proficient' in basic ICT skills and competencies which indicated a degree of readiness to enable their use of online learning at the university. The first and most basic competency of word processing skills which involves the ability to type and edit was one in which the majority of students (69.2%) claimed to be either very proficient while 23.1% categorized themselves as proficient. Nine (9) students identified themselves as being 'fairly proficient.' When probed in the focus groups as how this presented a challenge to their entire academic performance at the university, those who claimed to be fairly proficient said that their major challenge was that of speed of typing and editing rather than any other technical difficulty and they were taking steps to gradually improve this skill through rigorous practice within all their courses. All respondents were conversant with the use of social media (Facebook, WhatsApp, e mail) as online communication and described their status as either proficient or very proficient. Eighty percent (80%) of prospective teachers rated their proficiency in presenting research through APA approved guidelines as simply 'proficient' while almost twenty percent (20%) described their status as 'fairly proficient.' In subsequent focus group sessions, teachers shared that while they can demonstrate basic skills of referencing and citing and searching for research material, they believed that this is an area in which they need greater professional development and training in order to consider themselves as 'very proficient' and as such "definitely capable of performing exceptionally at a postgraduate standard later on." Other competencies in which at least seventy five percent (75%) of prospective teachers perceived themselves as proficient or very proficient were the use of CANVAS and Zoom applications and platforms as well as other teaching applications for online activity such as Google Classrooms, Google Docs and The Teams Platform. No teacher in the sample perceived himself as 'not proficient' in any of the competencies listed.

Table 4. Prospective teachers' self- perception of I.C.T competence to enable online tasks.

On-line tasks	Very Proficient	Proficient	Fairly Proficient	Not Proficient
Word processing	83 (69.2%)	28 (23.1%)	9 (7.7%)	
Power-point creation	60 (50.0%)	42 (34.6%)	18 (15.4%)	
Zoom conferencing	46 (38.4%)	56 (46.2%)	18 (15.4%)	
CANVAS Applications)	23 (19.2%)	74 (61.5%)	23 (19.25%)	

Research work/ Referencing	-	97 (80.8%)	23 (19.2%)
On-line communication (social media etc)	74 (61.5%)	46 (38.5%)	
Teaching Applications (eg Google classrooms/Teams)	23 (19.3%)	65 (42.1%)	32 (38.6%)

Focus groups: Prospective teachers' benefits, challenges and recommendations.

Seven focus groups of seven participants each were used. The interviews were guided by an interview schedule which focused on the benefits, challenges and recommendations for improving online learning at the university.

Discussion on the benefits allowed for elaboration of many of the responses made in the questionnaire about the advantages of e learning. Flexibility was one of the overarching responses. Respondents spoke of the convenience of learning from one's own home; online learning has significantly reduced travelling time and travelling costs which have been a great challenge in face to face classes and teachers claimed that learning can now take place 'anytime and anywhere.' One participant claimed, " Since many of us are also working parents, who are tasked with the responsibility of child care duties, greater balances can be made to accommodate all other events and yet give learning a priority." Participants spoke of online learning as catering to different learning styles, while acknowledging the limitations placed on kinesthetic and verbal abilities. The availability of resources was identified as a major benefit- the accessibility to recordings of missed lectures; the dispatch of relevant readings for advanced class preparation and the active use of YouTube videos, Zoom conferencing and interactive online games and activities. Participants generally agreed that online learning created avenues for them to develop digital creativity and will be useful to them not only in the present period but in teaching for the future. One participant remarked, "We have always been constantly reminded of the role technology must play in the future of teaching. The time has come upon us now, ready or not!" One of the major challenges voiced by participants of each group was poor internet service and connectivity issues which interrupted many learning experiences and placed many students, especially those living in remote areas with unreliable power supplies at great disadvantage. During the COVID pandemic, the option to visit internet cafes was non-existent and this created severe challenges for individuals during course assessments and presentations and advisory sessions. Participants in groups acknowledged that some peers possessed inadequate knowledge of some online platforms and tools and this hampered their progress. Even though teachers previously spoke of the benefits of learning from one's own home, they recognized that issues of equity may exist; distractions in the home from spouses and siblings are less obvious in the confines of face to face classroom learning. The harmful effects of "on- screen time" are another issue which may impact on prospective teachers. Teachers voiced that their attention span waned after considerable time in on line classes and it was difficult to sustain rigorous participation and attention even in the most motivating of activities. In every focus group, participants noted that their time management of online activity is an area which they need to develop. Associated with this is the limited time available on online classes for one to one interaction with a course lecturer to discuss individual concerns or private queries. Online directions for completion of assessment tasks are generally presented asynchronously with the task; opportunities for clarification of specific requirements of a given task are generally unavailable beyond what is provided. Participants noted that while content delivery via the virtual realm is a welcome change, the approach to assessment taken by the university must also be altered from a primarily summative "recap and recall" format which is common in traditional written examinations which encourage "cramming" and all the harmful effects of conventional tests. An interesting comment was, "The assessment culture at the university needs to change because our adjusting to 'open book' examinations needs to be a gradual process. These skills must be taught to us." In prospective teachers' Practicum course, where they were assessed on their online delivery of lessons to children, there were limitations. One focus group commented on the validity of assessing children on line when, "parents are in the background, assisting the child, by whispering answers to them. This is not an authentic indication of the child's learning and it is difficult to prevent unwarranted parental intervention online." Other responses pertaining to limitations of online pedagogy through this practicum experience were:

- "It is extremely difficult to assess children's process of thinking and problem solving in mathematics. Eliciting genuine solutions is problematic and cannot be captured in an online environment."
- "especially in Mathematics, children learn best through manipulation and sharing of physical resources. The best online resources for math are yet to provide this stimulus for children's full exploration. In addition to this, accessing suitable online resources for teaching is a challenge in itself."
- In the online environment, it is a challenge to assess affective outcomes; with the loss of face to face interaction, the affective becomes a difficult domain to develop."
- We need to be wary that we turn online learning into a teacher- centred classroom atmosphere where almost all depends on teachers' control and directions.
- "Sometimes, we cannot be certain that all children are paying attention or that all are focused when we teach. It is difficult to get this human touch online."

These are among the many concerns which arose from the focus group interviews of prospective teachers. Prospective teachers also provided recommendations for improving on-line learning and assessment in future Bachelor of Education online programmes. These included providing compulsory courses for university students to acquaint themselves with different online platforms, especially those that are currently used by primary schools in the education system of Trinidad and Tobago such as Google Classrooms, Teams and Canvas. Lecturers at the university should undergo intense professional development in these areas, particularly in there and ragogy of teacher preparation for technological pedagogical knowledge. In the immediate future, research opportunities at the universities should be focused on changes in pedagogy with a view to optimizing strategies to be used in new environments. There was consensus within all the discussions that more formative assessment on line strategies must be used to prepare students for summative assessments. In the focus group discussion, one participant suggested that "alternative assessment methods like oral presentations, journals and e -portfolios should find greater place in the online assessment realm rather than simply attempting to place traditional assessment types into this new pedagogy." With specific reference to classroom activities, prospective teachers proposed that students be allowed greater choice in assessment to reflect their learning style as advocated by differentiated learning and be given greater feedback opportunities. Lecture delivery on line should present more tasks to keep students engaged and rigorously involved in sessions. For each course, it was recommended that a list of

'trusted sites' be provided as well as guides for sourcing materials. Nevertheless, the recommendations were limited because in general, participants of focus group interviews were generally satisfied with the management of the transition to online line learning by the university due to the unexpected impact of the pandemic on society.

Summary

This study investigated the perceptions, attitudes and preferences of prospective teachers at a university in Trinidad and Tobago towards online learning during the Covid-19 pandemic. In summary, while prospective teachers generally exhibited a slightly greater preference for face to face teaching because of their previous years of familiarity with this medium, they recognized that online learning presents significant benefits to teacher education. Flexibility, active engagement of students and authentic preparation for future post-COVID experiences were among the major benefits of the online experience while constraining factors included unstable internet connectivity, lack of personal and social interaction and the need for hands on manipulative activities in some subject areas. Participants generally believed that they were proficient in basic ICT competencies needed to initiate their journey into deeper online experiences and commended the university for embarking on online learning during the COVID-19 pandemic period so that the completion of this undergraduate programme was able to proceed without interruption but with the same level of intellectual rigour as traditional teaching and learning.

CONCLUSION

Generally, prospective teachers perceived online learning as a stimulating and rewarding experience. They indicated that there is a need for the university to conduct more practical sessions and include more courses to assist with online teaching and learning as well as provide greater technical support and advice to assist them as well as others. Also recommended are professional development courses for practising teachers within the school system, administrators and other stakeholders. The uncertainty of the duration of the COVID-19 pandemic presents a level of uncertainty in being able to project a time frame for a return to the 'old normal.' Online teaching and learning appears to be the new normal to which education all over the world is transitioning, so preparation of teachers is critical to ensure that classroom teaching remains dynamic, rigorous and certain to adequately prepare today's children for an uncertain future.

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