

# LEVELS OF INTEREST AMONG PROSPECTIVE AND ENROLLED UNDERGRADUATE STUDENTS IN LEARNING THROUGH ONLINE AND BLENDED MODES

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## ABSTRACT

In many developing countries, at least in Africa, many colleges and universities continue to deliver undergraduate level education in the in-person, face-to-face, mode. Many of these institutions are slow in adopting and embracing the online learning mode. This study investigated levels of interest among prospective and enrolled undergraduates for the full-online or blended learning mode. The study also assessed the factors that stimulated the interest of these groups for the preferred delivery mode. Based on a sample of 414 prospective and enrolled undergraduates from private and public colleges and universities in the context of Botswana, and using a survey design that involved questionnaires, and regression analysis, the study found that majority (56%, n=414) of the sample was interested in and preferred some form of online or blended learning, compared to the face-to-face learning mode. The proportion of individuals with keen interest in the blended learning mode, at undergraduate level, is surprisingly high. The motivational drivers for the student choice are linked to greater flexibility and convenience, and perceived better opportunity for interactions with professors and classmates (OR=10.9; 95% CI: 5.4 – 22.1). The COVID-19 outbreak and the requirements for social distancing may have also accounted for the level of interest reported. The findings have major significance for curriculum design and development, instructional design in higher education, education technology infrastructure development, and long-term enrolment planning.

**Keywords:** study modes, online learning, blended learning, face-to-face learning, undergraduate students, higher education, Botswana

## INTRODUCTION

In many developing countries, at least in Africa, a number of colleges and universities continue to deliver undergraduate level education through the in-person mode (Africa Business Insights 2020). The in-person mode is often referred to as the traditional or face-to-face mode of teaching (Brown 2002). Recent disruptions to the traditional mode of study resulting from the COVID-19 pandemic have stimulated discussions in many colleges and universities in the southern hemisphere about the prospect of introducing online learning mode to complement the traditional mode of study. It appears the motivation for the change is driven by business survival interest in view of the COVID-19 pandemic, and not so much an interest in fundamental reform and modernisation of the delivery models or approaches in higher education. Sentiments expressed by African scholars seem to suggest that higher education institutions whose mode of teaching has been the traditional model are not keen to modernise and have only modified their delivery system temporarily due to the COVID-19 outbreak (Africa Business Insights 2020; Kalolo 2019; Kintu, Zhu, and Kagambe 2018; Vali 2013). Many of these institutions are waiting for the COVID-19 health threat to subside so that they can return to the traditional teaching model.

However, there are a few college and university leaders who see the COVID-19 pandemic as an opportunity to reform their existing teaching models (Boggs et al. 2021). Even before the COVID-19 pandemic, online education was a driver of growth for these higher education leaders who anticipated the growing influence of digital technology in education. At the time, the concern was about decline in traditional enrollment (Boggs et al. 2021). Before the pandemic hit, these institutions started building national brands for online higher education which today set them apart from their peers (Boggs et al. 2021). University of Cape Town is a case in point. Increasingly, too, there is an identifiable, and growing group of higher education students in different parts of Africa, who want to engage, differently, with the learning environment and with the college and university community (Ananga and Biney 2017). Many young females who became mothers after entering university or college, for instance, have reported a keen interest in studying and engaging in their studies from home rather than from the campus (Galanek, Gierdowski and Brooks 2019). The irony though is that it appears that the outbreak of the COVID-19 pandemic had motivated many college and university undergraduate students to study remotely and online when in fact, hitherto, they would have rejected that study mode.

Research is needed to better understand the current sentiments among secondary and post-secondary school students towards learning in an online or remote environment off-campus. It is possible that, despite requirements for social distancing, many prospective university and

college students who completed secondary school – or many undergraduates who matriculated and are already studying with a college or university – may want face-to-face teaching instead of the blended or online learning model (Dziuban, Hartman, and Moskal 2004). Equally, many of these individuals may feel differently, and instead would prefer the blended or online learning model, instead of face-to-face teaching. Understanding these dynamics can inform discussion about student motivation as well as inform the debate on curriculum planning. For instance, changing the mode of study requires reaccreditation of the programme. The dynamics can also provide early signal regarding teaching and learning infrastructure development investment decisions that university and college leaders need to make (Kintu et al. 2018; Vali 2013).

Previous studies in the field of online and blended learning are either based on the online technologies and infrastructure that facilitate and enhance the modality (e.g., Moakofhi et al. 2017; Isaac 2007; Noh et al. 2012), or on the human experience, behaviour and perceptions of those supplying and/or receiving education through e-learning settings (e.g., Ullah, Khan, and Khan 2017; Ismail et al. 2012; Zakariah et al. 2012). Past research also put some focus on certain process and outcome issues such as student performance, efficiency and effectiveness associated with the e-learning environment (e.g., Morton et al. 2016; Dziuban et al. 2018; Kintu et al. 2018). Research has not focused on changes in perceptions towards modes of study following a crisis event such as the COVID-19 health crisis. The onset of the COVID-19 pandemic may have change levels of interest in the online and the in-person mode of study, especially among undergraduate university and college students, or among individuals who are looking to enrol in undergraduate level education. A better understanding of these issues can add to both the theoretical literature (e.g., Deci and Ryan 2002; Bandura 1963) and the literature on education policy and planning (e.g., Kwak et al. 2012; Brown and Mooketsi 2018).

## **LITERATURE REVIEW**

### **Modes of study**

In college and university settings, study mode manifests in distinct forms. For instance, when students attend lessons in-person, this model is referred to as traditional, face-to-face, mode of study (OECD 2003). The face-to-face mode of study has a long history, and there is currently a myth that it is the most effective approach because it facilitates social interaction (Brown 2002; 2003). By contrast, distance learning is a distinct alternative mode of study (Cohen 2003). There is no face-to-face classroom engagement in the distance learning mode. This implies then that teaching occurs in a remote, off campus manner. Lefoe and Hedberg (2006) state that one

of the outcomes of distance learning is that the student learns alone. While distance learning gives flexibility, there are reports of social and health challenges for students who participate in the mode of learning (Aspden and Helm 2004). But distance learning is a legitimate alternative to the face-to-face learning mode.

The advent of information and communication technologies, the internet, and the increased competition for students, have given university and college academic leaders greater flexibility in terms of study mode options. The internet has ushered in the online learning environment as a mode of study, and Bailey et al. (2015) have argued that the online learning context has revolutionised the way students think about higher education institutions. Dziuban et al. (2018) as well as Morrison (2003) are of the view that there are unique benefits and characteristics that are associated with the online learning mode, which both the students and the institution can capitalise on. The online learning mode for instance reduces all expectations of an on-campus presence, and it places the students in control of the learning environment instead of the academics (Dziuban et al. 2004). Many scholars believe the change in the locus of control is one of the main reasons for the gradual rise in the popularity of online study in the higher education sector (Escueta et al. 2017; Boggs et al. 2021; Kintu et al. 2018).

### **Motivation for modes of study**

Several researchers cited specific factors that motivate undergraduate students to opt for online or blended learning as a mode of study (Escueta et al. 2017; Dziuban et al. 2004; 2018; Kintu et al. 2018). Dziuban et al. (2004) highlighted logistics-related factors associated with commuting to campus, whereas Kintu et al. (2018) mentioned renewed desires among university students for flexibility and independence in the way that they use their time. Dziuban et al. (2018) and others (e.g., De Klerk 2020) reported that many undergraduates opt for the online or blended learning mode in order to better cope with personal circumstances like disability, family life, or work, the opportunity for collaborative social and pedagogical engagements, unlimited access to quality learning materials such as recorded contents, promotes different ways of learning among students, and the high quality of the academic attainment in the programme. Kintu et al. (2018) stated that pass rate in blended learning is as good or better than traditional mode.

The novelty of technology may also bias student interest towards the online learning mode. Technology acceptance model suggests that student perceptions affect their intention to use an ERP system (Brown and Mooketsi 2018). This implies that when a student perceives a technology as useful and as easy to use, the individual is likely to adopt it (Kwak et al. 2012). Furthermore, self-regulation is also an important motivating factor (Deci and Ryan 2002).

Students in online mode of study want to be self-regulated – i.e., they want personal control and to adjust their studying around their lifestyles (Deci and Ryan 2002). Students with high goal-orientation and the enjoyment of spontaneous and live conversations, are more likely to prefer in-person mode of study than online study (Clayton, Blumberg, and Auld 2010). Health conditions does not necessarily sway these goal-orientations.

By contrast, the institution's interest in providing an online learning context may not be entirely linked to pedagogical motives. Boggs et al. (2021) has demonstrated that revenue motives underpin the strategy of many universities and colleges in the northern hemisphere to turn to the online mode of learning. Online is presented as a strategy to expand higher education access in order to improve revenue. The outbreak of the COVID-19 pandemic in Botswana and other parts of Africa since March 2020 has further reinforced the instrumental nature of decision makers in university and college. Many have turned to the online mode as a stop-gap measure to limit discontinuity in teaching and learning amidst the COVID-19 disruption of on-campus studies (Laurillard 2017; De Klerk 2020). These factors shift the mode of study debate beyond mere educational concerns to include economic, health and political concerns.

### **Accessibility and constraints in mode of study**

A host of circumstances has shown to inhibit prospective and enrolled undergraduate students from accessing education through certain modes. For instance, Moakofhi et al. (2017) have reported that an intertwining of factors linked to ICT infrastructure, IT human capital support, e-learning policy gaps, and institutional support have combined to discourage student interest in full online or blended learning mode in Botswana. The abovementioned observations confirm the evidence in previous research by Naidu (2003) that low internet penetration, rural and remote locations, weak connectivity, low digital literacy level, and lack of electricity in certain locations can all impact negatively on student decision whether to or not to adopt a particular mode of study. In other words, college and university students would perhaps find it as undesirable to opt for online or blended learning under conditions of internet depravity and low digital literacy – even if the COVID-19 outbreak persist for an extended period of time into the future.

Andersson and Grönlund (2009) have summarised the major factors constraining student uptake of online mode of study in many developing countries as: (a) individual related characteristics, (b) technological and contextual related factors, and (c) programme related factors. The accreditation of online as mode of study is a major part of the programme related factors. Online learning is not recognised as a mode of study in some jurisdictions in Africa and in Botswana student studying at undergraduate level through online mode do not qualify for

Government Tuition Funding. Price (2006) asserts that gender factors also play a prominent role, with female, as opposed to male, more inclined to opt for the online learning mode. There are indications that life outside the classroom constrains the mode of study that undergraduate students often opt for (Galanek, Gierdowski, and Brooks 2019), with certain demographic groups – such as being married, or unmarried but in domestic relationship, single mother/fatherhood, and being employed – having lesser interest in the face-to-face mode but higher interest in the online learning mode.

### **Higher education students as decision makers**

Decision making scholars always frame decision makers within the context of a decision environment, depending of course on the particular circumstances (Payne, Bettman, and Johnson 1993; Labuschagne 2003). In the context of study mode, students are the main decision makers because they are faced with the choice (Labuschagne 2003). But the university may or may not make the alternative study modes, from which students can choose, available to them. These dynamics delimit the decision environment.

Payne et al. (1993) believe that as the decision maker, the student's labour of choosing a mode of study and making a final decision is rooted in various kinds of conflict. The student's conflict though is an intrapersonal one because it originates from a problem within one person; that is, a preferential problem since its solution is based on the decision maker's preference (Payne et al. 1993). The decision to choose one mode over others implies that other alternatives are ignored. As a result, Carroll and Johnson (1990) state that conflict is always present because no single option can necessarily satisfy all the needs and expectations that the student, as the decision maker, may have. A key point to highlight then is the role of students as optional decision makers in the mode of study selection (Labuschagne 2003; Brown and Forcheh 2009). Optional decision makers manipulate their environment, and Labuschagne (2003) propagates that optimal decision makers attack the problem, as opposed to hope it will be resolved by itself. If students are given the options of face-to-face, full-online, and blended learning mode, and they are able to perceive their benefits, they will decide on the one they are interested in, based on their needs.

### **PURPOSE OF THE STUDY**

In light of the literature discussion, the purpose of this study was:

- (a) To assess the level of interest of prospective and enrolled undergraduate students in the full-online or blended learning modality. And ascertain if gender and age mediate the level

of interest.

- (b) To determine the significant predictors of the mode of study preferred by the students.
- (c) To derive a statistical model for predicting student level of interest in a mode of study.

## **STUDY METHODOLOGY**

### **Study context**

The study was conducted in Botswana. The Botswana context was chosen because it is not just unique, but it, in many ways, depicted many characteristics that are common in other African nations. For example, Botswana's higher education sector comprised a mixture of both public and private institutions. Higher education in Botswana is offered through both colleges and universities, and student tuition is highly subsidised. Like elsewhere in Africa, prior to the outbreak of the COVID-19 pandemic, the main mode of study in many of the higher education institutions was the traditional, face-to-face, mode (Owusu-Fordjour, Koomson, and Hanson 2020). The COVID-19 outbreak, and the subsequent social distancing requirements imposed, motivated two key responses in the higher education sector: first, the shifting of teaching and learning activities to online platforms in order to sustain learning continuity. Unfortunately, not all the institutions were able to move their teaching online due to weak internet connectivity and limited access among students to devices. This led to the second point, which was the outright closure of institutions. This resulted in a temporary discontinuity in teaching and learning for about six weeks. Other African countries reacted to the pandemic in more or less a similar manner.

### **Study design, sample and sampling**

The study followed a survey design, wherein one round of survey data was collected, and quantitative methods were applied in the analysis (Creswell 2012). The survey design suited the investigation because it aimed to assess interest-level patterns in the dataset generated and to describe the motivational characteristics for the mode of study that prospective and enrolled university and college students preferred. Reliable trends were generated from the survey (Creswell 2012), which no other non-experimental design could provide.

A total of 414 prospective and enrolled undergraduate students from public and private institutions in Botswana made up the study sample. Table 1 shows a summary of the sample characteristics. A total of 101 prospective, and 313 enrolled, students made up the sample. Three quarters (75.6%) of the total sample were enrolled undergraduate students. The majority (59.9%) of the total sample was female, which is more or less consistent with the population

demographic trends in schools.

**Table 1:** Profile of sample

Academic level	Description	Number	Per cent
Prospective undergraduate college /university students	Male	39	38.6
	Female	62	61.4
	Under 20 years	51	50.5
	Between 20 and 25 years	41	40.6
	Above 25 years	9	8.9
	<b>Total</b>	<b>101</b>	<b>100.0</b>
Enrolled undergraduate college /university students	Male	127	40.6
	Female	186	59.4
	Under 20 years	105	33.5
	Between 20 and 25 years	191	61.0
	Above 25 years	17	5.4
	<b>Total</b>	<b>313</b>	<b>100.0</b>
Total	Male	166	40.1
	Female	248	59.9
	Under 20 years	156	37.7
	Between 20 and 25 years	232	56.0
	Above 25 years	26	6.3
	<b>Total</b>	<b>414</b>	<b>100.0</b>

Convenience sampling was used to select the sample because the aim was to get a diverse group of prospective and enrolled undergraduate students. The prospective college or university students were secondary school leavers who completed their secondary education in November 2019, and were in the process applying for entry into post-secondary education institutions in August 2020. The prospective undergraduate students were identified at the Higher Education Fair held annual in the country. As individuals visited the promotion booths of the different institutions that participated at the Fair, they were requested to complete the study questionnaire. By contrast, enrolled undergraduate students were identified after visiting the fifteen main college and university campuses. Enrolled students from different Faculties were invited to participate. In both of these cases, only those individuals who volunteered to complete the questionnaire were included in the sample.

### Data collection and analysis

A questionnaire was used to collect the data for this study. The questionnaire covered both outcome variables and predictor variables. The outcome variables were preferred mode of study, and level of interest in blended or online learning mode. However, the predictor variables were (a) computer literacy, (b) access to computer device, (c) access to internet, (d) desire for

flexibility and convenience, (e) fulfilling personal learning needs, (f) enhance personal digital skills, (g) interaction with mates/lecturers, and (h) minimizing learning distractions. The variables were derived from a review of the literature.

The outcome variables were categorical. Participants were required simply to specify their preferred study mode (i.e., face-to-face, online, or blended), and to specify whether or not they were interested in studying through that mode. A 5-point Likert Rating Scale was used to measure the predictor variables. Participants were asked to specify if they strongly agree /agree or strongly disagree /disagree to a set of statements linked to the study purpose. The internal consistency reliability coefficient was 0.78 (Cronbach's Alpha) for the outcome variables, whereas it was 0.73 for the predictor variable measures. Both Alpha values were acceptable internal consistency levels.

Data analysis was performed with the aid of the SPSS software package. Both descriptive and inferential statistics were calculated. A hierarchical multiple logistic regression procedure was used to determine the predictive model, with only factors found to be significant included in the final model. A goodness of fit of the final model was evaluated to determine the percentage of students correctly reclassified using the model. This process determined the significant predictors for prospective and enrolled undergraduate students who have high interest in the blended and/or online learning mode. The results are reported below.

## FINDINGS

The findings from the data collected are summarised and presented in various tables and figures throughout this section. For easy of reference, all results are presented in accordance with the research objectives stated above.

### Objective 1: Level of interest in full-online or blended learning modality, and gender and age mediation

The levels of interest in studying full-online, and/or blended is depicted in Table 2.

**Table 2:** Percentages of students with interest in online/blended learning modes

Academic Level	Gender	Age in years	Total	Blended mode only			Blended + Online mode		
				%	95% LCL*	95% UCL**	%	95% LCL	95% UCL
Prospective undergraduates	Male	<20	16	60.1	38.5	81.6	70.2	50.0	90.3
		20–25	20	45.8	25.8	65.8	50.0	29.9	70.1
		>25	3	42.7	5.6	79.8	57.3	20.2	94.4
	Female	<20	35	56.4	40.8	72.0	56.4	40.8	72.0
		20–25	21	44.0	24.4	63.5	60.1	40.8	79.3
		>25	6	<b>39.8</b>	9.3	70.4	70.3	41.8	98.9

Academic Level	Gender	Age in years	Total	Blended mode only			Blended + Online mode		
				%	95% LCL*	95% UCL**	%	95% LCL	95% UCL
Enrolled Undergraduates	Male	<20	31	57.2	40.7	73.6	68.7	53.3	84.1
		20–25	90	<b>62.8</b>	53.0	72.6	<b>73.4</b>	64.5	82.4
		>25	6	50.0	18.8	81.2	<b>50.0</b>	18.8	81.2
	Female	<20	74	55.1	44.1	66.2	66.7	56.2	77.2
		20–25	101	56.2	46.7	65.7	69.6	60.7	78.4
		>25	11	46.6	21.3	72.0	60.1	35.2	85.0
Total	Male	<20	47	58.9	45.3	72.4	70.7	58.1	83.2
		20–25	110	59.7	50.7	68.7	69.3	60.9	77.8
		>25	9	46.1	18.8	73.4	53.9	26.6	81.2
		<i>Total</i>	<i>166</i>	<i>58.8</i>	<i>51.4</i>	<i>66.2</i>	<i>69.4</i>	<i>62.5</i>	<i>76.4</i>
	Female	<20	109	55.8	46.6	64.9	63.7	54.9	72.6
		20–25	122	54.0	45.3	62.7	68.3	60.1	76.4
		>25	17	42.8	21.6	64.0	66.8	46.6	87.0
		<i>Total</i>	<i>248</i>	<i>54.0</i>	<i>47.8</i>	<i>60.1</i>	<i>66.7</i>	<i>60.9</i>	<i>72.5</i>
		<i>Total</i>	<i>414</i>	<b>56.0</b>	<b>51.2</b>	<b>60.7</b>	<b>67.9</b>	<b>63.5</b>	<b>72.4</b>

\*LCL – Lower confidence limit; \*\*UCL – Upper confidence limit

In Table 2, overall, 56 per cent (95% CI: 51.2 – 60.7) of all students (prospective and enrolled) were interested in the blended learning mode, while about two thirds (67.9%) (63.5–72.4%) were interested in the blended learning and full-online learning mode combined. When the data is disaggregated by gender, age and academic level, the analysis revealed that the percentage of students who preferred the blended learning only mode range from 39.8 per cent (95%, CI = 9.3–70.4) for prospective female students, aged over 25 years, to 62.8 per cent (95%, CI= 53.0–72.6) for enrolled male students, aged between 20–25 years. There is high variability in the individual confidence intervals, suggesting that age, gender and academic level are not necessarily strong predictors of interest in the blended learning only mode.

A similar pattern is observed when we combine students who preferred blended or full-online learning modes. When the combined data (i.e., blended learning plus full-online learning modes) were disaggregated by gender, age and academic level, the analysis revealed that the percentage of students who preferred the combined blended and full-online learning mode range from 50.0 per cent (95%, CI = 64.5–82.4) for enrolled male students, aged over 25 years, to 73.4 per cent (95%, CI= 18.8–81.2) for enrolled male students, aged between 20–25 years (Table 3). There is moderate to high variability in the individual confidence intervals, which suggest that age, gender and academic level are not necessarily strong predictors of interest in the combined blended and full-online learning mode.

## Objective 2: Predictors of high interest in the full-online and, or, blended learning modality

The study used multiple logistic regression analysis to determine predictive models for student

who preferred to study the full-online learning mode, blended learning mode, or in any other form. Table 3 summarises the finding.

**Table 3:** Predictive model for interest in blended or/and full-online learning mode

The mode of learning will:	Scale	Estimate (B)	Wald	df	Sig.	Odds Ratio and 95% CI		
						Odd Ratio	Lower 95	Upper 95
Bring flexibility and convenience to my studying	Disagree	0.00	46.0	2	<0.001	1.0		
	Not Sure	1.26	13.6	1	<0.001	3.5	1.80	6.87
	Agree	2.39	44.3	1	<0.001	<b>10.9</b>	5.40	22.06
Enhance my interaction with academic faculty and classmates	Disagree	0.00	10.8	2	0.005	1.0		
	Not Sure	0.82	8.6	1	0.003	2.3	1.31	3.95
	Agree	0.79	6.1	1	0.013	<b>2.2</b>	1.18	4.12
Constant		-1.26	17.4	1	<0.001	0.3		

As expected, none of the background characteristics emerged as predictor of interest in full-online or blended learning mode. Among the eight predictors measured, the significant drivers of interest in full-online or blended learning mode were a believe that (a) full-online or blended learning mode will offer flexibility and convenience to their studying experience ( $P<0.001$ ), and that full-online or blended learning mode will enhance their interaction with academic faculty (professors and lecturers) and classmates ( $P<0.001$ ).

The odd ratio estimates in Table 3 show that the prospective and enrolled students who agreed/strongly agreed that blended or full online learning mode will provide flexibility and convenience in learning were about 11 times more likely to choose the blended or full online learning mode (OR=10.9; 95% CI=5.4–22.1) than those who disagreed/ disagreed strongly. Similarly, the prospective and enrolled students who agreed/strongly agreed that the blended or fully online learning mode will enhance their interaction with classmates and their professors and lecturers (faculty) were twice more likely to have high interest in blended or online learning (OR=2.2; 95% CI=1.2–4.1) than those who disagreed/ disagreed strongly.

### Objective 3: Statistical model

The goodness of fit of the parsimonious model was determined using the proportion of students correctly classified as either likely to prefer the blended/full-online learning mode or the face-to-face learning mode. The final model corrected predicted 236 (83.7%) of the 282 students (i.e., prospective and enrolled) who preferred the blended or full-online learning mode. Furthermore, the final model corrected predicted 80 (60.6%) of the 132 students (i.e., prospective and enrolled) who preferred the face-to-face learning only mode. Thus, overall, the model has a predictive accuracy of 76.3 per cent.

## DISCUSSION

### Student mode of learning

The study investigated level of interest among prospective and enrolled undergraduate students in full-online learning, blended learning, or face-to-face learning mode. The study also investigated the factors that predict the level of study interest in opting for one of these modes of study. As have been shown over the last 18 months since the outbreak of the COVID-19 pandemic in March 2020 in many Africa countries, students in many colleges and universities were forced to move to remote teaching and learning models from one day to the next. For many of these students and academic staff, the remote teaching and learning endeavour was their first experience. During those initial stages, the focus was on ensuring learning continuity and engagement and access for students, as well as just-in-time development training for the academic staff so that they were able to complete the academic year. This study was undertaken during those initial phase of shifting teaching and learning to the non-traditional mode of learning in order to ascertain the student voices concerning online and blended learning. It was undertaken in anticipation that the need for full-online and remote blended learning would expand, and that interest in developing or scaling blended learning or full-online learning from the makeshift remote learning arrangement would eventually be the way forward for colleges and universities.

The revelation that the majority of the prospective and enrolled undergraduate students in this study have expressed a keen interest in, and would certainly prefer to learn through, some form of blended or online learning modality and environment is a new development in Botswana. Even before the COVID-19 pandemic, online education was not a driver of pedagogical change or enrolment growth in the tertiary education sector in the country (Brown 2002). Before the COVOD-19 pandemic, undergraduate students study primarily through the face-to-face mode (Brown 2002) and university and college leaders were not looking toward the World Wide Web for any strategic inspiration to develop their business in Botswana. The responses of major of the students in this study are the clearest indications yet that a trend that has not part of the pedagogical planning or thinking in many colleges and universities over decades in the country may now need to be embraced by college and university leaders and curriculum planners. More than 56 per cent (95% CI: 51.2–60.7%) of all the students were interested in programmes in blended learning mode while about two thirds (or 67.9%) (63.5–72.4%) were interested in programmes in either blended or full-online learning mode. The age, gender and academic level that the students were in did not significantly influence student

preferences. In other words, the sentiments were likely shared by all the students regardless of gender, age and academic level.

While there were students (132 of the 414 students or 32%) who expressed an interest to return to the in-person learning mode, it is evident that the others would not mind staying in online, remote or blended learning for the long term, raising the stakes on college and university infrastructure development to support technology and digital learning as well as building sustainable offerings, going forward. For the majority of students in this study, online learning or blended learning should not just be stopgaps measure for social distancing in response to the COVID-19 pandemic crisis (World Bank 2020). Although the vast majority of colleges and universities in Botswana has yet to respond to the digital revolution in the education processes and systems that students have called for, Kalolo (2019) is of the view that they are merely delaying the inevitable. Boggs et al. (2021) and others (e.g., Moe and Rajendran 2020) forecasted that online learning pedagogy will become normalized for practically every university or college student in the near future, and that very soon all enrolment growth in the higher education sector between now and 2030 will be a result of online learning. The imperative that confronts college and university leaders and curriculum planners then could not have been more clear: i.e., every institution should invest in a robust online and/or blended learning offering, and quickly.

As college and university leaders consider student level of interest to engage in digital education online or in blended mode, the unforgiving reality in the sector is that not every college or university may be able to achieve the same kind operational model. As such, Boggs et al. (2021) argues that a necessary step for higher education institutions is to decide on an operational model that works best for them. Boggs et al. (2021) proposed that university and college leaders may opt for an in-house operational model, in which the institution owns the intellectual property of the end-to-end process, plus the infrastructure, programme development, the programme marketing, the enrolment process, as well as the in-programme support services. While this model involves a huge start-up investment, it stands to provide significant revenue gains in the long-run (Boggs et al. 2021). The alternative to the in-house model is a partnership model, in which university and college collaborate with an established existing online education provider to offer the degree programmes for a percentage of the student tuition revenue (Aslanian and Magda 2018; Boggs et al. 2021). The collaborative model is one quick way to setup an online education platform, but it imposes limits on the university/college's control of the marketing and admissions process – a point that academic leaders would need take into account (Boggs et al. 2021). There is nothing stopping a university or college from adopting an independent contractor model. The contractors would serve as

independent online learning vendors at different stages of the online operations value chain. Aslanian and Magda (2018) state that in the independent contractor model, the institution would pay a fixed fee to deliver the programmes. Regardless of the operational model that a college or university choose, the decision would be one step in recognising the student voices and their preference for digital learning in the twenty-first century through online or blended mode in higher education.

The outcome of past study by Roberts, Brindley, and Spronk (1998), on behalf of Human Resources Development of Canada, correspond with other researchers (Dziuban et al. 2004; Kintu et al. 2018) that if used correctly, online learning and blended learning modalities which embrace technologies and digital learning can be just as effective as face-to-face learning mode. This should give confidence to college or university sceptics of blended or online learning mode.

### **The motivational drivers underpinning student preferred learning mode**

Dziuban et al. (2004), Kintu et al. (2018) as well as Deci and Ryan (2002) hypothesized that differences in university student commuting logistics needs, personal circumstances (e.g., marital status, disability status, employment status), and perceptions about technology are influential decision factors in differences in students' levels of interest in, and motivation for, a particular mode of study. This study corroborated these findings. It found that while demographic factors such as gender, age group and academic levels had no significant influence in students' levels of interest in a mode of study, their desires for flexibility and convenience in their studying experience ( $P < 0.001$ ), and their zest for improvement in their interactions with academic faculty (professors and lecturers) and classmates ( $P < 0.001$ ) significantly influenced their decision to yearn for the full-online or blended learning mode instead of the face-to-face mode. It appears that these undergraduate students (i.e., prospective and enrolled) have recognised the benefits of digital learning via different devices in universities and colleges (Brown and Mooketsi 2018; De Klerk 2020; Boggs et al. 2021; Kalolo 2019). Prensky (2001) talks about digital natives – i.e., individuals born post-1980 into, and raised in, a digital world – and he describes their affinity for the digital language of phones, computers, video games, the Internet. The student population who matriculated for, or studying courses at, university or college nowadays are largely digital natives who think and speak in digital terms and process information remarkably differently from their digital immigrant predecessors (Prensky 2001). This generational fact, perhaps helped by the circumstances of the COVID-19 pandemic, may account for the choice students made when they chose between face-to-face and online/blended modalities.

In investigating the level of interest of prospective and enrolled undergraduate students in the face-to-face, full-online or blended learning modality, the research also assessed whether there were significant motivational factor differences in the study mode choice between the prospective student and enrolled student groups (i.e., academic level). The analysis revealed that the two sample groups did not differ significantly with regard to any of the predictive factors. However, the fact that the outcomes were non-significant, should not lead to a generalisation that the two groups are exactly alike. The present research did show interesting correlations with Kintu et al. (2018) work on blended learning mode.

The data on student background characteristics (e.g., academic level, gender) revealed information on certain general similarities of the sample and the content on their age-group, which indicated that students at the undergraduate format of education are often youths and economically inactive. Both Prensky (2001) and Minero (2017) describe youths in this phase of their life as being more conscious of their social media presence and how they want to be communicated with, but less aware of their role in society. Consequently, in an educational system arrangement designed for an analog world, the study surmised that these students are quite conscious of the implications of their decisions (choices). As such, students in the sample had a good sense of decision making, and were conscious of the consequences of their decision behaviour. For students to arrive at the final decision of their choice of study mode, Koziellecki (1981) alludes that they would have had to draw on their internal resources – i.e., values, norms, knowledge, attitudes and experience. Although the process of making a choice was not the focus of this study, it is worthwhile to note that the internal resources perhaps helped students resolve any conflicts that may have spurred at the moment of choice as they considered alternative study modes or as they engaged with different stages of the optimal-decision-making process (Koziellecki 1981; Van den Aardweg 1998).

Interestingly, about 132 of the 414 students opted for the face-to-face learning mode, and the final statistical model corrected predicted 80 of the 132 students. Among the students who preferred the face-to-face learning mode, there were a number (47.0%) of them who would still be happy to take a course in the online or blended learning mode. The present study can conclude that choosing face-to-face delivery mode above the full online or blended delivery mode did not mean that these students had a negative attitude towards the other modes. Most probably, a survey amongst the face-to-face delivery mode representatives about the use of technology such as laptop, tablet or the Internet in their learning would indicate that the majority of students rely on tablets or computers or the Internet for their learning and teaching activities and studies. Perhaps past negative experience with, or uncertainty about, the full-online or blended learning mode, explain these students' decision to choose the face-to-face learning

mode (O'Neil and Sai 2014). The data points to an area of change management for university and college leaders.

The inferential statistics affirmed that majority of students chose full-online or blended learning mode and that those who agreed/strongly agreed that the blended or full online learning mode will provide flexibility and convenience in their studies were about 11 times more likely to choose the blended or full online learning mode (OR=10.9; 95% CI=5.4–22.1) than those who disagreed/ disagreed strongly, whereas those who agreed/strongly agreed that the blended or fully online learning mode will enhance their interaction with classmates and faculty were twice more likely to choose blended or online learning (OR=2.2; 95% CI=1.2–4.1) than those who disagreed/ disagreed strongly. This result supported research from two independent studies about perceived usefulness of technology on the one hand, and self-regulated learning and learning styles on the other hand. A study by Bergamin et al. (2012) suggested that flexibility in learning provides a student with room for volitional control and an array of strategies, and encourages persistence in the face of adversity. Autonomy in, and control over, one's learning process can be seen as a condition for self-regulated learning (Bergamin et al. 2012; Deci and Ryan 2002). Students desire for the full-online or blended learning mode is perhaps indication that they want to be more self-regulated. Another study conducted on students with kinaesthetic learning style confirmed that students with a kinaesthetic learning style tend to prefer online technologies in the teaching-learning mode because they enjoy active learning (Carbo, Dunn, and Dunn 1986). Helsper and Eynon (2010) anticipate that social or academic interaction with peers or professors would improve in digital learning because digital natives want to communicate, socialise, create and learn with the aid of technologies. This evidence suggests that a new kind of learner, with changed expectations, is gradually dominating contemporary higher education classrooms.

## **IMPLICATIONS FOR HIGHER EDUCATION IN AFRICA**

The results of the present study offer interesting insights when foregrounded in African theory on the aims or the end points of higher education. Much philosophy of higher education in the literature has dealt with the suitable final ends of a higher education institution – that is, the literature has considered what such an institution ought to aim to achieve for its own sake, and not merely as a means (Metz 2019). In practice, the ends of higher education have implications for a variety of educational concerns such as what to teach, how to teach it (i.e., methods and modes), and whom to include among the student population (Adler 2003; Metz 2019; Enslin and Horsthemke 2016; Gbadegesin 1991).

Many scholars have contrasted the ends of African higher education and Western higher

education (Adler 2003; Metz 2019; Enslin and Horsthemke 2016; Gbadegesin 1991). They argue that the aims of African higher education are anchored on two key principles, namely identity (e.g., identifying with ...) and solidarity (e.g., acting for the good of others ...) or what Metz (2019) termed “communion” or “harmony”. In this perspective, education ought to foster well-being, promote virtue, support culture, facilitate cooperation, and rectify injustice (Metz 2019; Gbadegesin 1991). University education ought to lead people to treat others as special by virtue of their capacities both to be communed with, and to commune (Metz 2019). By contrast, the dominant, modern-day, Western or Anglo-American, perspectives of what higher education ultimately ought to strive to achieve is anchored on principles of autonomy, truth and citizenship (Metz 2019; Adler 2003; Enslin and Horsthemke 2016). In other words, Western higher education institutions, entrenched in liberalism, ought to protect, develop, or respect the individual’s capacity for self-governance (Norman 1994), foster critical thinking and rational inquiry (Siegel 1988), strive to discover truths (Shils 1997), and to cultivate democratic and global citizenship (Nussbaum 2010). There is literature illustrating how the Afro-communal purpose encompasses, and extends further than, the tenets inherent in the Anglo-American principles of autonomy, truth and citizenship (Metz 2019; Adler 2003).

The issue at this point, of course, is the extent that the full-online or blended learning mode can lead universities and colleges to achieve the Afro-communal ends of higher education, as captured in the principles of identity and solidarity. Metz (2019) alludes that the solidarity aspects of the communal ethic entails that an individual should *act for the sake of others* – both in terms of need fulfilment and morality, character building, and being able to commune with others. Sociologists insist that a key condition for helping others to improve their character is physical interaction (Vygotsky 1975). Physical interactions prepare individuals to become more aware of their implicit biases, to identify and deal with conflicts of interest, and to become more attuned to other people’s points of view and feelings (Metz 2019). Virtual interaction is mediated interaction and virtual asynchronous engagements for instance has been criticized its inability to convey empathy (Tu 2002). The imposition of virtual learning as of mode of education needs consideration of how to use it to develop virtue. But Wenger’s (1998) notion of “communities of practice” could become a key vehicle for university virtual learning pedagogy and the promotion virtue because it encourages collaborative learning whereby students could learn synchronously in collaboration with peers to achieve common goals. Virtual learning would need to be deliberately designed to foster joint public activities as opposed to isolated assignments if African universities and colleges are to achieve the solidarity ends of higher education and demonstrate that they care for individuals’ quality of life.

Metz (2019) further contends that to the identity component of the Afro-communion

purpose of higher education requires universities and colleges to educate people to share a way of life or common culture. This view entails the protection, interpretation, and transmission of culture (Metz 2019). Organising students to learn in virtual space challenges university and college leaders to reflect on ways that could get students to develop common values and a strong sense of togetherness (Adler 2003; Metz 2019; Enslin and Horsthemke 2016; Gbadegesin 1991). The affinity of the students to learning online implies that if not carefully considered, the fostering of a common culture wherein students are supported to interpret the world around them in similar or familiar ways, might be compromised (Metz 2019). In a globalised perspective, where a university virtual student population is cosmopolitan and multicultural in nature than monocultural, the chance that the institution can favour the culture of the students in the large majority is slim. Metz (2019) proposed that the best solution would be for a university or college to aim to foster ways of interpreting life to which majority of students could identify, than to favour particular cultural groups. In the same vein, in preferring online studies, students – especially those from minority cultural background – ought to reflect on the cultural disadvantages they might encounter in mainstream. The onus is on the university to build virtual learning communities in which class, gender, and racial divisions are overcome with a national identity and cooperation (Adler 2003; Metz 2019).

Facilitate cooperation is an aspect of the identify element in the Afro-communal ends of higher education. Facilitating cooperation helps individuals to identify with others (Metz 2019). African universities and colleges ought to build identity by encouraging cooperation among people because communion hinges on unity, a sense of belonging and ownership. The fostering of cooperation among students in digital education online or blended is a unique challenge for higher education. If the ends of communion is to be achieved, pride in being part of a university or a class needs to be deliberately fostered among students in virtual learning space. Although Wenger (1998) proposed collaborative learning as a strategy to stimulate cooperation in online learning context, reliance on collaboration alone might not work because even when a class of students has high level of internal collaboration, its functioning with the rest of the university might be insular. Metz (2019) proposed there are certain actions and policies that universities or colleges might implement, which could encourage students and faculty to cooperate and to avoid infringing on the ways of others. As universities or colleges consider student preferences for virtual learning, they should consider having virtual learning standards and rules, such as rules to regulate discussion and debate (Metz 2019). Including more virtual learning students in university or college decision-making is also another strategy to encourage cooperation. The onus is on the higher institutions to build strategies to encourage cooperation among students.

## CONCLUSIONS

This study investigated the underlying themes of the research through empirically assessing the level of interest of prospective and enrolled undergraduate students for the face-to-face, full-online or blended learning modality, and the motivational factors that significantly predicted the choice behaviour of these students when they asked to choose between the modalities of face-to-face, full-online or blended learning. One of the key conclusions that can be drawn is that if given the opportunity, prospective and enrolled undergraduate students in the study would choose full online or blended learning as their mode of study in college and university. The implication of this is that online and blended learning modes are real competitor in the provision of higher education, and institutions that are entrenched in the traditional learning mode only need to evolve in response to the digital natives currently studying at school, college and university. New technologies are certainly playing a key role in the lives of young people in higher education, and academic leaders need to respond accordingly. They should continually investigate and expand the important role that these modes of education have to offer. Whether the aim of African higher education can be reasonably achieved through virtual education is an area for further discussion. Decisions to offer education online should be followed by careful planning.

As a second conclusion, the study challenges college and university planners to better conceptualise the students involved in the traditional mode of education. It is clear from this research that not every one of the students want to be taught in the traditional mode. Furthermore, not only are prospective and enrolled higher education students digital natives and hoarders of knowledge, but they are also decision makers even amidst conflict. It is true that not all students are optimum decision makers. However, with the right assistance, students can manipulate their ecosystems, and thus, have the ability to make decisions that produce appropriate outcomes. In the context of study mode, appropriate outcomes can be interpreted as being a more pleasant learning experience, where teaching and learning activities are in harmony with the motivational drivers that students hold about how they are taught. Students want flexibility and convenience as well as opportunity for virtual interactions as they engage and learn.

There are important lessons that can be extracted from the present study for college and university systems in the wider Africa region. A key lesson is the need for investment in higher education delivery system to provide for multiple modes of study. The college and university systems designed for an analog era need to invest in systems for the digital era. Another important lesson is the opportunity to expand education access that can emerge by tapping into the interest of prospective students to study online or in the blended format. As education is

being considered for virtual modality, the purpose of the education should not be lost. Alternative delivery modes call for the strengthening of national education regulations. Agencies responsible for quality assurance should assist the higher education sector by providing regulations to govern online learning. Statutory regulations should be responsive to the changing times, and to advances in higher education resulting from advances in information communication technologies.

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