

# Towards a Resilient Model of Education in Cameroon

Michael Nkwenti Ndongfack<sup>1</sup>

## ARTICLE INFO

### Article History:

Received 07.07.2020

Received in revised form  
15.03.2021

Accepted

Available online 01.07.2021

## ABSTRACT

The emergence of Coronavirus herein referred to as COVID-19 shut down schools globally for a while. The closure of schools negatively impacted educational systems that had not developed a resilient or alternative model of instructional delivery such as the Cameroon Ministry of Basic Education. Tentative measures were taken to ensure the continuous delivery of teaching while hoping to build a resilient model of education that can guarantee continuous learning in times of emergencies. With the desire to develop an e-learning platform, the following research question: What are the factors that will foster the use of e-Learning Among Primary School Teachers in Cameroon? To respond to the research question, survey research design methodology was employed targeting  $n = 378$  primary school teachers. The collected data was analysed using Pearson  $r$  correlation to examine the direct relationship between two variables. The findings revealed a positive relationship between the variables: relative advantage; compatibility; trialability; observability and attitude towards behaviour intention to use the e-learning platform. The relationship between attitude and behaviour intention was the strongest. An indication that attitude is a strong predictor of behaviour intention. It was concluded that relative advantage, compatibility, trialability and observability were predictors of teachers' attitude towards a behaviour intention to adopt the e-learning platform. On the other hand, the relationship between complexity and attitude was negative indicating that teachers perceive the e-learning platform as complex. It was recommended that teachers should be: thoroughly sensitised on the advantages of adopting the e-learning platform to innovate teaching and learning; and provided with the opportunity to experiment with the platform before it is finally rollout.

© IJERE. All rights reserved

### Keywords:

E-learning, diffusion of innovations theory, technology adoption, primary school teachers, resilient model of education.

## INTRODUCTION

The advent of coronavirus popularly known as COVID-19 witnessed the temporary shutdown of most schools around the world as one of the measures to curb the rapid spread of the pandemic (UNESCO, 2020a). The closure of schools negatively impacted educational systems that had not developed a resilient or alternative model of instructional delivery such as the Cameroon Ministry of Basic Education. In Cameroon, learning was completely halted in all Nursery and Primary Schools around the country as one of Government measures to curb the spread of the epidemic. Following the decision, several crises meetings were held by education stakeholders to map out strategies through which teaching and learning could continuously be delivered safely. Tentative measures such as the delivery of teaching and learning through the radio and television for examination classes were adopted for a period of three months (Ministry of Basic Education, 2020a). Although this mode of learning was adopted, it was limited only to pupils preparing for end of year certificate examinations. While the measure was tentative, there is a need to build a resilient model of education that can guarantee continuous learning in times of emergencies. Looking at global trends in the use of Information and Communication Technology herein referred to as technology, it can be observed that the tool has permeated various facets of society and has brought about significant impacts on how business had previously been conducted (Nkwenti & Abeywardena, 2019). One of the sectors highly impacted by technology is education whereby teaching and learning is experiencing a rapid transformation through the innovative use of devices. Increasingly, most institutions of higher learning have been developing online learning modes to make traditional teaching and learning flexible (Nkwenti Ndongfack, 2017). Research findings are demonstrating that teaching and learning in conventional classrooms will highly be impacted by the use of online learning (Allen, Seaman, Poulin & Straut, 2016). Education facilitated by e-learning is transforming instructional process both in educational institutions and in business firms. E-learning is becoming an accepted and indispensable part of mainstream education prompted by the need to make

Corresponding email: [nkwenti@ens.cm](mailto:nkwenti@ens.cm), [orcid.org/0000-0002-6095-5074](https://orcid.org/0000-0002-6095-5074), Higher Teacher Training College, University of Yaounde

learning more accessible to a wider population; the growing need for continual skills and the need to enhance learning outcomes while promoting lifelong learning (Nkwenti Ndongfack, 2016). For this reason, more and more institutions of learning around the world are embracing e-learning systems and investing heavily in developing the infrastructure (Nkwenti Ndongfack, 2017). Research highlights several advantages of online learning which include: the flexibility to study from anywhere, at any time; possibility of saving significant amounts of money; no commuting on crowded buses or local trains; flexibility to choose; and time saving (Nagrle, 2013; Brown, 2017; Bijeesh, 2017). Based on these advantages, it becomes obvious that online learning is vital for continuous education delivery and could conveniently serve as a resilient model of instruction during emergency situations as it is the case with COVID-19. The potential of technology in education has been highly emphasized in many research studies as having the ability to: ensure continuous delivery of learning in times of crises; enhance learning outcomes; improve learners' grade scores; widen access to learning opportunities; cut down the cost of education and make learning more flexible (Nkwenti Ndongfack, 2016; 2017; Commonwealth of Learning, 2020; Finkel, 2020). Owing to the numerous advantages offered by technology, many educational systems made it an integral part of the school curriculum and the educational system. Within the Cameroon the Ministry of Basic Education, technology was introduced as part of the school curriculum in 2007 and since 2010, pupils' skills on the use of the tool are assessed in the end of the primary cycle examinations conducted by the ministry (Ministry of Basic Education, 2014). The integration of technology as part of the school curriculum is guided by three philosophical underpinnings: teach technology as a subject; use technology as tool to facilitate instructional processes; and teach through technology (Ministry of Basic Education, 2018). Twelve years after technology was introduced in the primary school curriculum, not all of the philosophical pillars have been implemented. Teaching through technology herein perceived as the used of various media such as e-learning platforms, television and radio and many more are yet to be fully exploited. Besides the inability to fully implement the three foundational pillars of technology in the ministry, other challenges such as the lack of computers, limited accessibility to internet connectivity and the absence of an e-learning platform remain a major challenge. Although teachers lack computers, the Inspectorate Pedagogy in Charge of Educational Technology organises in-service training annually in equipped facilities to update teachers' technology skills (Ministry of Basic Education, 2019). It is hoped that as the cost of technological tool and cost of internet connection reduces, many teachers will be able to purchase their own personal device connected to the internet. Looking at data on the possession rate of various learning technologies in Cameroon, it could be observed that the penetration rate of mobile phones was 86% in 2016 (Ministry of Post and Telecommunication, 2018). Other data published in the same report includes Internet penetration 35.5%; possession of a fixed phone set: 89% of households (at least 7 households out of 10 whatever the region, 98% in urban areas, 84% in rural areas, 99% in Douala and 65% in the East); possession of a computer: 14% of households (29% in urban areas, 5% in rural areas, 34% in Yaounde and 3% in the Far-North); Internet access: 16% of households (30% in urban areas, 7% in rural areas, 29% in Yaounde and 4% in the North-West). These data indicate that progressively, more and more people are having access to mobile devices and a few computers connected to the internet. Parents can use the devices to access the e-learning platform and other pool of resources available online to support children's learning. The successful deployment of an e-learning platform as a resilient model of education requires an understanding of factors that predict teachers' intention to embrace the innovation. While reviewing literature related to technology innovation, it emerged that most researchers explore the Technology Acceptance Model (TAM) (Davis, 1989) and Innovation Diffusion Theory (IDT) (Rogers, 2003) to examine factors that motivate beneficiaries to embrace technology (Lee & Kim, 2007; Duan et al., 2010; Zvanut, et al., 2011; Nkwenti Ndongfack, 2017). These frameworks could contribute in identifying factors that shape teachers' intention to adopt e-learning in the delivery of teaching and learning in the Ministry of Basic Education.

TAM was developed to investigate human factors directly associated with technology adoption (Davis, 1989). TAM describes factors and how they contribute to an individual's behavioural changes when implementing an innovative technology. The author explains that the framework provides better measuring tools that facilitate the evaluation and prediction of a user's behaviour towards a new technology. TAM is underpinned by two solid theoretical constructs: perceived usefulness and perceived ease of use (Nkwenti Ndongfack, 2017). Perceived Usefulness refers to "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Perceived ease of use refers to "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989, p.

320). These two fundamental factors influence individuals' behaviour intention and attitudes towards using an innovative technology. An individual attitude is hypothesised to influence the Behaviour Intention to actual system usage. More explicitly, behaviour intention is the observable probability that a teacher will use the e-learning platform to deliver teaching and learning (Engle et al., 2010). Thus, the intention to perform a particular behaviour is a good predictor of the actual behaviour if the behaviour is under the person's control (Fishbein & Ajzen, 1975). Many researchers have ascertained that once a teacher has an intention to embrace e-learning to innovate traditional practices, it is very likely that the teacher will explore this mode of instructional delivery when the tool is available (Hsu & Lin, 2008; Nkwenti Ndongfack, 2017). These same researchers, found in their studies that attitudes influence behaviour intention which in return, influenced the acceptance of the innovative technology under study. So, it is predicted in this study that teachers' behavioural intention in relation to other factors towards using the e-learning platform may influence their intention to use the system. Moreover, an individual's attitude towards the use of an innovative technology is directly determined by the concern's behavioural intention (Shen & Eder, 2009). It can therefore be predicted that in order for teachers to embrace the innovative e-learning platform, they ought to have a positive attitude, perceive the technology as useful and easy to use. Thus, users' attitude towards a system influences their adoption of the new system (Nkwenti Ndongfack, 2017). Probing deeper into factors that could influence the adoption of an innovation technology, a researcher developed the Innovation Diffusion Theory (Rogers, 2003). Innovation Diffusion Theory (IDT) describes the how, why and at what rate innovative ideas and technologies spread in social systems (Rogers, 2003). Unlike TAM which focuses on factors persuading individuals to change, IDT rather perceives change as the evolution or reinvention in routine practises and behaviours to better respond to the needs of individuals and groups. Rogers argue that diffusion is the process by which a technology sprays across a population of an organisation as it is the case in the context of this study. In the diffusion of innovation, it is not people who change, but processes and procedures (Les Robinson, 2009).

Researchers argue that the decision to accept and adopt an innovation largely depends on the beneficiary's perception (Dingfelder & Mandell, 2011). This assertion corroborates with the findings of other researchers who argued that the fundamental factors that influence individuals' attitudes towards using a technology and the intended use are perceived usefulness and perceived ease of Use (Davis, 1989; Nkwenti Ndongfack, 2017). On the other hand, some authors argue strongly that perceived usefulness and perceived ease of use do not probe deeply into the determining factors of technology acceptance and actual usage (Rogers, 1995; Bennett & Bennett, 2003). In return, they illustrated that individuals are persuaded to form a favourable or unfavourable attitude towards a technological innovation based on the perceived innovation characteristics which are: relative advantages, compatibility, complexity, trialability, and observability.

*Relative advantage* for pursuing the innovation - the degree to which stakeholders perceived the innovation as better than existing practices (Duan et al., 2010). Rogers (2003) opines that an individual embraces an innovation from either a preventive or an incremental perspective. The preventive perspective refers to an individual accepting the innovation to avoid future pitfalls. On the other hand, the incremental perspective refers to an individual embracing an innovation to instantly transform routine practices. Comparatively, individuals who innovate on preventive basis are slower because the relative advantage is uncertain while the incremental innovator sees the relatively advantage as beneficial in short term. Research has proven that when teachers see the short-term benefit of an innovation, they quickly adopt it (Newton, 2003; Shea, Pickett, & Sau Li, 2005).

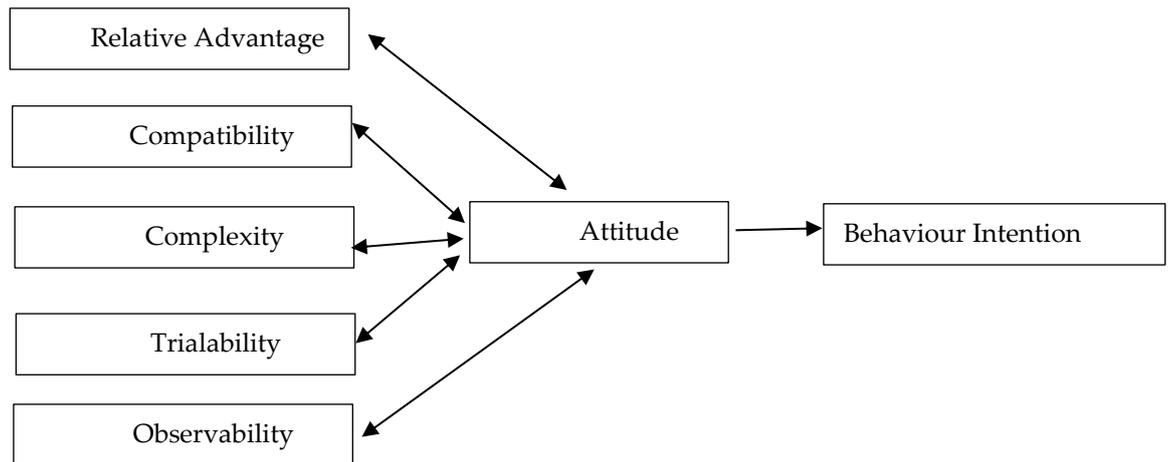
*Compatibility* with demand -the degree to which stakeholders perceive the innovation as being consistent with the existing practices or what they need. This is essential to reduce uncertainties. Researchers argue that innovations that are incompatible with individual norms and values will not be accepted and adopted as quickly as the compatible innovations (Duan et al., 2010).

*Complexity* involved in the innovation -the degree to which stakeholders perceive the innovation to be difficult to understand and use. Some researchers reported that people may be intimidated by the complexity of an innovation and may therefore be afraid to adopt it. Complexity is a measure of the depth and extent of knowledge needed to understand an innovation (Lee & Kim, 2007). Some studies have reported that there is a negative relationship between complexity and adoption of an innovation (Zvanut et al., 2011).

*Trialability* is the degree to which stakeholders see the possibilities of testing the innovation before actually adopting it (Abukhzam & Lee, 2010); When stakeholders have the possibility to try out an innovation before its final adoption, they tend to embrace it.

*Observability* is the degree to which stakeholders see the easiness with which the results of the innovation can be visible and easily communicated to prospective users (Rogers, 2003). Similarly, observability can also be described as the visible changes seen in innovation adapters (Abukhzam & Lee, 2010); “the ease with which the technology can be observed, imagined and described to the potential user” (Bennett & Bennett, 2003: 56).

Based on the logical analysis of the components of the two theoretical models discussed above, this researcher concludes that both complement each other. Thus, the analysed factors from both frameworks could influence teachers attitude to embrace an innovation in the teaching and learning processes (Hodges, 2004; Bennett & Bennett, 2003). Based on these facts figure 1 is proposed as conceptual framework adapted for this study. The model hypothesises that relative advantages, compatibility, complexity, trialability, and observability will influence teachers’ attitude which in return will influence their behaviour intention to use the e-learning platform.



**Figure 1.** Conceptual Framework of the study

**Situation of the Problem**

With the unprecedented shutdown of schools due to COVID-19, Ministries of Education around the world are now leapfrogging into the use of e-learning platforms for continuous instructional delivery. This decision is highly supported by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and World Health Organisation (WHO). They perceived e-learning as a strategy to guarantee continuous education while also stopping the spread of the virus since learners do not have direct contact with one another (UNESCO, 2020b). In most cases, Ministries of Education are exploring the Modular Object-Oriented Dynamic Learning Environment (Moodle) platform for the continuous delivery of learning (Verawardina, 2020). Moodle is a flexible, customisable and free learning management system that is based on open-source software used by millions of people around the world to host and offer online education and training programmes (Shahzad, Hafizi & Golamdin, 2014; Nkwenti Ndongfack, 2017). As an open-source learning management system, it offers a wide array of activities, themes, and resources made available for free by developers (Zakaria & Daud, 2013). Based on the dynamic nature of Moodle platform, the ministry in collaboration with her Technical and Financial Partners opted to explore the software for the development of her e-learning platform. However, many research findings have reported that when an innovation is proposed or being introduced, most beneficiaries turn to put up a strong resistance (Davis, 1989; Rogers, 1995; 2003; Nkwenti Ndongfack, 2017). As such, the researchers are unanimous that when a new technology is being introduced, the departure point should be to examine factors that could motivate the beneficiaries to embrace the innovation. Based on the analysis of factors that could influence the adoption of an innovation, this researcher formulated the following research hypothesis:

H1: Teachers’ perceived relative advantage of e-learning will positively influence their attitude to adopt the system

H2: Teachers’ perceived compatibility of e-learning will positively influence their attitude to adopt the system

H3: Teachers’ perceived complexity of e-learning will negatively influence their attitude to adopt the system

H4: Teachers’ perceived trialability of e-learning will positively influence their attitude to adopt the system

H5: Teachers’ perceived observability of e-learning positively influences their attitude to adopt the system

H6: Teachers’ attitude towards the e-learning platform will positively influence their behavioural intention to use the system.

**Aim of the Study**

The aim of the present study is to explore the components of Technology Acceptance Model and the Innovation Diffusion Theory in the determination of factors that could contribute in influencing primary school teachers’ attitude which in return will shape their behavioural intention to adopt e-learning platform in the innovation of teaching and learning.

**METHOD**

The research was conducted using the quantitative research design approach to collect data leading to the determination of factors that foster the use of e-Learning Among Primary School Teachers in Cameroon. The target population for this study was n = 60 000 Primary school teachers teaching in public primary schools (Ministry of Basic Education, 2020b). The Stratified Random Sampling Technique (Amin, 2005) was used to select a total of n = 400 teachers to participate in the study at a 75% confidence interval. Table 1 indicates the frequency distribution of participants taking part in the present study in terms of different variables as observed. Out of this total n =151 (37.75%) of the schools were in the rural settlements, n = 105 (26.5%) in semi-urban settlements while n = 144 (35.75%) were implanted in the urban settlements. Out of the 378 teachers who participate in the study, 218 (57.67%) were females and 160 (42.33) were males. 78 (20.63%) females and 57 (15.07%) males were below 32 years old while 140 (37.03%) females and 103 (27.25%) male participants were 32 years old and above. Thus, a majority of the teacher-participants were above 32 years old. Within this age range, 61 (27.98%) females and 42(26.25%) males had teaching experiences below 5years. Another 49 (22.47) females and 45 (28.12%) males had taught for between 6 to 10 years whilst 42 (26.25%) males and 60 (27.52%) females teaching experiences ranged between 11 to 15years. Finally, 48 (22.01%) females and 31 (19.37%) males had taught for above 15 years. In all, the percentage of female teacher-participants supersedes that of the male because in the Ministry of Basic Education, 55% of the primary school teachers are females while 45% are males (Ministry of Basic Education Statistical Year Book, 2020).

**Table 1.** Frequency Distribution of Participants with regard to Variables

<b>Variables</b>					
Settlement	Rural	Semi urban		Urban	
	144(35.75%)	105 (26.5%)		144(35.75%)	
Gender	Male			Female	
	frequency	percentage	frequency	percentage	
Participants		160	42.33	218	57.67
Age	< 32 years	57	15.07	78	20.63
	≥ 32 years	103	27.25	140	37.03
Teaching experience	≤5 years	42	26.25	61	27.98
	6-10 years	45	28.12	49	22.47
	11- 15 years	42	26.25	60	27.52
	≥ 15 years	31	19.37	48	22.01

**Material**

The instruments used for data collection were made up of questionnaires designed to collect data on participants’ demographic information, relative advantages, compatibility, complexity, observability, trialability, and attitude towards behaviour intention. The questionnaires adapted from the research conducted by Duan et al. (2010) and Ajzen (1975) consist of two main sections: The first section incorporates a nominal scale to identify respondents’ demographic information in 3 items notably gender, age range and teaching experience. The second section used a 5-point Likert scale test item ranging from 1= Strongly Disagree, 2=Disagree, 3= Neutral, 4 = Agree, and 5= Strongly Agree, to ask participants to rate their opinion on the conceptual framework for the study.

The reliability of the data collection instruments and issues related to wordings, measurement and ambiguities were ascertained by pre-testing the questionnaires. A reliability analysis was conducted to estimate a reasonable level of reliability; the internal consistency was assessed using Cronbach’s Alpha test.

Cronbach’s Alpha test estimates the extent to which multiple indicators for a latent variable belong together. The recommended scales for Cronbach’s Alpha test should exceed cut-off value of 0.70 (Schmitt, 1996). Since each computed statistic should be above 0.70, the different constructs tested indicate a good degree of reliability as seen in table 2.

**Table 2.** Number of test items, source, measurement scale and the Alpha Cronbach test value

Variables	No. of items	Adopted from	Measurement	Alpha value
Relative advantages	5	Duan et al. (2010)	5-point Likert scale	$\alpha = .902$
Compatibility	5	Duan et al. (2010)	5-point Likert scale	$\alpha = .910$
Complexity	4	Duan et al. (2010)	5-point Likert scale	$\alpha = .904$
Observability	4	Duan et al. (2010)	5-point Likert scale	$\alpha = .899$
Trialability	3	Duan et al. (2010)	5-point Likert scale	$\alpha = .958$
Attitude	3	Ajzen (1975)	5-point Likert scale	$\alpha = .834$
Behavioural intention	3	Ajzen (1975)	5-point Likert scale	$\alpha = .954$

The data was collected using online questionnaire constructed with the Google Docs platform (<https://docs.google.com>). The link was shared through emails and Whatsapp groups to enable teachers from the ten Regions of Cameroon to participate in the study. The questionnaire was sent to 400 teachers and n = 378 responded.

**Data Analyses**

The collected data was analysed using Statistical Pack for Social Sciences (SPSS) Version 20. Inferential Statistical Analysis technique was performed to address the objectives of the study (Fink, 2012). Pearson r correlation was used to examine the direct relationship between two variables without controlling the effects of other variables.

**FINDINGS**

**Table 3** indicates the result of the correlation analysis. It can be observed that all variables had a positive and significant relationship with the attitude towards behavioural intention to adopt the e-learning platform. Specifically, a negative relationship exists between complexity and attitude towards behavioural intention to adopt the e-learning platform. An indication that teachers are perceiving the e-learning platform as a difficult system. Further, it could be observed that the strength of the significant relationships ranged between small and moderate. Relative advantage ( $r = .383$ ) and compatibility ( $r = .364$ ) were among the variables that demonstrated moderate relationships with the attitude towards behaviour intention to adopt the e-learning platform. The remaining variables possessed low relationships with the attitude towards behavioural intention. Although some relationships show low correlations, this study established the existence of relationships between the variables and the attitude towards behavioural intention. Thus, there was a strong correlation ( $r = .597$ ) between attitude and behavioural intention.

**Table 3.** Correlations between relative advantages, compatibility, complexity, trialability, and observability with attitude towards behavioural intention.

Variables	Attitude towards behavioural intention	
	$r(p)$	$r^2$
Relative advantage	.383** (.000)	.1454
Compatibility	.364** (.000)	.1344
Complexity	.297** (.000)	.0003
Trialability	.296** (.000)	.0880
Observability	.299** (.000)	.0893
Attitude	.597** (.000)	.1756

n = 378, \*p < .05, \*\*p < .001

Regression analysis provides a clear and accurate indication of the relationship between variables. In inferential statistics, zero-order correlation analysis indicates that one variable correlates to the other. Regression analysis was performed to explain the ability of various factors to predict a dependent variable. The extent to which each predictor explains the dependent variable can be assessed, with the influence of other variables held constant. Therefore, the results deduced from correlation analysis were only indicative of relations for further analysis and comparison.

**Table 4** shows the results of linear regression analysis performed to test the impact of dependent variables on attitude in line with the conceptual framework. The overall model was significant ( $p = .000$ ) with the overall model (Adjusted  $R^2 = .265$ ) contributing 26.5% of the variance in explaining the relationship between attitude and behavioural intention. The results indicate the predictors of attitude towards behaviour intention to adopt the e-learning platform in hierarchical order as follows: relative advantages ( $\beta = .192, p = .000$ ); trialability ( $\beta = .123, p = .010$ ), compatibility ( $\beta = .118, p = .022$ ) and observability ( $\beta = .109, p = .031$ ). In the same way, there was a strong correlation ( $r = .198, p = .000$ ) between attitude and behavioural intention. On the other hand, complexity had no significant relationship towards attitude.

More explicitly, linear regression analysis performed on relative advantages and attitude yielded a correlation ( $\beta = .192, p = .000$ ). The  $\beta = .192$  signifies that one standard deviation shift on relative advantages would result in a .192 shift on attitude, with a regression coefficient equal to .0219 and a  $p$  value equal to .000. An indication that relative advantages have a positive and significant impact on attitude; and it could be used as a predictor of attitude. This explanation applies for trialability, compatibility, observability towards attitude and behavioural intention.

**Table 4.** Overall Linear regression analysis of all the variables predicting attitude towards behaviour intention

Variables	$\beta(p)$	$sr^2$
Relative advantage	.192 (.000)	.0219
Compatibility	.118 (.022)	.0079
Complexity	-0.062 (.262)	.0018
Trialability	.123 (.010)	.0098
Observability	.109 (.031)	.0077
Attitude	.198 (.000)	.0223
$R^2$	.278	
Adjusted $R^2$	.265	
F	17.652	
Sig.	.000	

n = 378, \* $p < .05$ , \*\* $p < .001$

## DISCUSSION, AND SUGGESTIONS

From the analysed results, it can be observed that all relationships were statistically significant when tested using correlation analysis. On the basis of these findings, it can be reported that relative advantage, compatibility, complexity, trialability, and observability towards attitude and behavioural intention to adopt the e-learning platform were significant predictors.

The relationship between relative advantage and attitude towards behavioural intention was statistically significant. This relationship shows that the teachers will embrace the e-learning platform if they see that it is advantageous in the accomplishment of their routine instructional practices. This finding is consistent with the work of other researchers who found in their study that teachers adopt a proposed innovation because they foresaw a short-term benefit of the change (Newton, 2003; Shea, Pickett, & Sau Li, 2005). Thus, it can conveniently be concluded that the positive relationship between relative advantage and attitude is a predictor to behavioural intention to adopt the e-learning platform.

Similarly, the relationship between compatibility and attitude towards behavioural intention is statistically significant. Compatibility relationship indicates that teachers see the innovation as being consistent with the ongoing teaching and learning taking place in their classrooms. A similar outcome was reported by other researchers who concluded in their work that teachers embraced the technological innovation because it is compatible with their day-to-day activities (Duan et al., 2010). Therefore, the relationship between compatibility and attitude is a predictor to behavioural intention to use e-learning.

On the other hand, the relationship between complexity and attitude towards behavioural intention was negative. This finding indicates that although teachers see the innovative e-learning platform as advantageous and compatible with their daily practices, they are however intimidated by the innovation because they see it as complex. Some researchers had reported from their findings that lack of skills to embrace an innovation is a major stumbling block to innovation diffusion (Lee & Kim, 2007). However, they recommended that enough sensitisation be conducted through communication channels to encourage them to be positive and learn new things. The negative relationship that exists between complexity and attitude is in line with findings of other researchers (Zvanut et al., 2011).

The analysis of the relationship between trialability and attitude was also statistically significant. This relationship signifies the importance of providing access to e-learning on a trial basis so that teachers can experiment with the technology, which in turn can increase the rate of the behavioural intention. Therefore, trialability could be a better strategy that could be employed to demystify the perception of the e-learning platform as complex. The positive relation between these two constructions further corroborates with the works of other researchers who argued that when teachers see the possibilities of testing an innovative technology before actually adopting it, they accept the idea (Abukhzam & Lee, 2010). Thus, the positive relationship that exists between trialability and attitude is a predictor to behavioural intention.

While analysing the relationship between observability and attitudes, it was found that the outcome is statistically significant. When teachers see that adopting an innovative technology will make their activities visible and open to the world, they are motivated. In this regard, measures should be taken to showcase the innovative approaches teachers are applying as they use the e-learning platform. The positive relationship between observability and attitude is consistent with the works of other researchers who reported that when users of new technology know that their innovation will be communicated through communication channels, they become interested (Abukhzam & Lee, 2010). There, the relationship between observability and attitudes is a predictor to behavioural intention to adopt the e-learning platform.

Finally, this study remarked that attitude was the strongest predictor to behaviour intention to adopt the e-learning platform. This significant finding corroborates with the findings of other researchers who concluded in their studies that a positive attitude towards a new technology was a strong predictor of actual usage of the system (Nkwenti Ndongfack, 2017).

This study was designed to identify factors that will significantly influence primary school teachers to use the e-learning platform to innovate teaching and learning. An analysis of existing similar studies led to the design of a conceptual framework. The framework enabled this researcher to analyse the relationship that exists between five independent variables highly reported by literature as influential to attitude and behaviour intention to use the e-learning platform. These variables were: relative advantage; compatibility; complexity; trialability; and observability towards attitude and behavioural intention. The findings revealed significant relationships between all the variables except the relationship between complexity and the attitude towards a behavioural intention to adopt the e-learning platform. It was therefore concluded that relative advantage, compatibility, trialability and observability were predictors of teachers' attitude towards a behavioural intention to adopt the e-learning platform.

Since these factors are of great importance in shaping teachers' attitude, this study makes the following recommendations: firstly, teachers should be thoroughly sensitised on the advantages of adopting an e-learning platform to innovate their teaching and learning. By so doing, they will see the relative advantage and compatibility with what they do on daily basis in the classrooms. Secondly, teachers should be provided with the opportunity to experiment with the platform before it is finally rollout. They should also be provided with a step-by-step tutorial so that they can occasionally try on their own to build exciting courses. Boosting trialability and providing them with an opportunity to showcase the quality of lessons produced through the use of the platform will further motivate them. Furthermore, it strengthens their perception of the relative advantage of the e-learning platform and demystify the perception of the platform as complex. Thirdly, a help

desk should be created to provide regular support to struggling teachers. One other approach to further support teachers is through the creation of a community of practice on instructional delivery using the e-learning. In a community of practice, the more knowledgeable teachers can quickly mentor struggling teachers and raise them to expert level. Fourthly, the e-learning platform must be properly maintained and upgraded periodically to avoid bugs that can break the system down and frustrate struggling teachers. This maintenance must include short-term and long-term strategies to enhance the current systems.

## REFERENCES

- Ajzen, I. (1985). *From intentions to actions: A theory of planned behaviour*. In: Kuhl, J., Beckmann, J. (Eds.), Springer Series in Social Psychology. Springer, Berlin.
- Allen, I. E., Seaman, J., Poulin, R., & Straut, T. T. (2016). *Online report card: Tracking Online education in the United States*. Babson Park, MA: Babson Survey Research Group. Retrieved from Education Advisory Board Website on 15 Dec 2020 from <http://onlinelearningsurvey.com/reports/online-report-card.pdf>
- Abukhzam, M. & Lee, A. (2010). Workforce attitude on technology adoption and diffusion. *The Built & Human Environment Review* 3: 60–71.
- Bennett, J. & Bennett, L. (2003). A review of factors that influence the diffusion of innovation when structuring a faculty training program. *The Internet and Higher Education* 6(1): 53–63.
- Bijeesh, N.A (2017). *Advantages and disadvantages of distance learning*. Accessed on 10 September 2020 from <http://www.indiaeducation.net/online-education/articles/advantages-and-disadvantages-of-distance-learning.html>
- Brown, C. (2017) Advantages and disadvantages of distance learning. Accessed on 10 September 2020 from <https://www.eztalks.com/elearning/advantages-and-disadvantages-of-distance-learning.html>
- Commonwealth of Learning [COL]. (2020). *Guidelines on distance education during COVID-19 Burnaby*: COL. Retrieved from <http://oasis.col.org/handle/11599/3576>
- Davis, F., (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Dingfelder, H. E., & Mandell, D. S. (2011). Bridging the research-to-practice gap in autism intervention: An application of diffusion of innovation theory. *Journal of Autism and Developmental Disorders*, 41(5), 597–609.
- Duan, Y., Q. He, W. Feng, D. Li and Z. Fu. (2010). A study on e-learning take-up intention from an innovation adoption perspective: A case in China. *Computers & Education*, 55(1): 237–246.
- Engle, R. L., Dimitriadi, N., Gavidia, J. V., Schlaegel, C., Delanoe, S., Alvarado, I.,... & Fink, A. (2012). *How to conduct surveys: A step-by-step guide*. Los Angeles, CA: SAGE.
- Finkel, A. (2020). *Differential learning outcomes for online versus in-class education*. A report to Minister of Education, Australia by Australia's Chief Scientist.
- Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*. Addison-Wesley, Reading.
- Hodges, C. B. (2004). Designing to motivate: Motivational techniques to incorporate in e-learning experiences. *Journal of Interactive Online Learning*, 2. Available from <http://www.ncolr.org>
- Hsu, C. L., & Lin, J. C. C. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & Management*, 45(1), 65–74.
- Lee, S. & Kim, K. (2007). Factors affecting the implementation success of Internet-based information systems. *Computers in Human Behaviour* 23(4): 1853–1880.
- Les Robinson, (2009). *A summary of diffusion of innovations, changeology*. Retrieved from [https://www.enablingchange.com.au/Summary\\_Diffusion\\_Theory.pdf](https://www.enablingchange.com.au/Summary_Diffusion_Theory.pdf)
- Nagrle, P. (2013). Advantages and disadvantages of distance education. Accessed on 10 September 2020 from <https://surejob.in/advantages-and-disadvantages-of-distance-education.html>.
- Newton, R. (2003). Staff attitudes to the development and delivery of e-learning. *New Library World*, 104, 412-425.
- Nkwenti N. M. (2016). Baseline study on the current state of open and distance learning in Cameroon. Retrieved on 15 Dec 2020 from <http://oasis.col.org/handle/11599/2490>
- Nkwenti N. M. (2017). Factors that motivate students' acceptance and use of online course platform in the faculty of education in the University of Yaoundé 1, *Human & Social Science Series Syllabus Review*, 7(1).
- Nkwenti, M., & Abeywardena, I. (2019). OER mainstreaming in Cameroon: Perceptions and barriers. *Open Praxis*, 11(3), 289-302.

- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York, NY: Free Press
- Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). New York: Free Press.
- Shahzad, A., Hafizi,W. & Golamdin, A. G., (2014). E-learning navigation model based on student' s learning behavior : Case study in UUM. *Int. J. Bus. Soc. Sci.*, 5 (5), 118–130.
- Schmitt, N. (1996). Uses and abuses of coefficient alpha. *Psychological Assessment*, 8(4), 350–353. <https://doi.org/10.1037/1040-3590.8.4.350>
- Shea, P., Pickett, A., & Sau Li, C. (2005). Increasing access to higher education: A study of the diffusion of online teaching among 913 college faculty. *International Review of Research in Open and Distance Learning*. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/239/331>
- Shen, J. & Eder, L.B. (2009). Intentions to use virtual worlds for education. *Journal of Information Systems Education*, 20, 225-233.
- UNESCO (2020a ). Education: From disruption to recovery Retrieved on 27 June 2020 from <https://en.unesco.org/covid19/educationresponse>
- UNESCO (2020b). COVID-19 Educational Disruption and Response. 2020. Available online: <https://en.unesco.org/covid19> (accessed on 30 July 2020).
- Verawardina, U.; Asnur, L.; Lubis, A.L.; Hendriyani, Y.; Ramadhani, D.; Dewi, I.P.; & Sriwahyuni, T. (2020). Reviewing online learning facing the Covid-19 outbreak. *J. Talent Dev. Excell*,12, 385–392.
- Wolff, B. (2010). Entrepreneurial intent: A twelve-country evaluation of Ajzen's model of planned behavior. *International Journal of Entrepreneurial Behaviour & Research*, 16(1), 35–57.
- Zakaria, E. & Daud, M. Y. (2013). The role of technology: Moodle as a teaching tool in a graduate mathematics education course. *Asian J. Manag. Sci. Educ.*, 2 (4),46–52.
- Zvanut, B., Pucer, P., Licen, S., Trobec, I., Plazar, N. & Vavpotic, D. (2011). The effect of voluntariness on the acceptance of e-learning by nursing students. *Nurse Education Today*, 31(4): 350–355.