PSYCHOLOGICAL READINESS AND INTEGRATION OF DIGITAL TECHNOLOGIES FOR TEACHING IN GOVERNMENT AIDED PRIMARY SCHOOLS IN UGANDA

Kyeyune Robert[1], Katarahweire Edgart Atwo[2], Engotoit Benard[3], Kasule Abdal[4] and Kituyi G. Mayoka[5]

[2]*Makerere University Business School, Uganda*
[1,3,4,5]*Department of Applied Computing and Information Technology, Makerere University Business School, Uganda*

Abstract

This study examines the role of psychological readiness of teachers on the integration of digital technologies for teaching in primary schools in Uganda. Using a cross-sectional quantitative research design, the study adopted a structured quantitative questionnaire which was administered to primary school teachers comprising of a sample of 335 respondents selected in Wakiso district as the geographical scope of the study. Using correlation and regression analysis methods, the findings revealed a significant positive association and significant predictive potential of psychological readiness on integration of digital technologies for teaching in primary schools in Uganda. It is therefore imperative that the psychological environment of the teachers is improved by ensuring that they are psychologically prepared to use digital technologies. Secondly by ensuring their perceived suitability of digital technologies on their teaching. Therefore, fostering psychological support for the teachers will bring about effective digital technology integration in teaching. This study contributes to existing literature by providing evidence on how teachers can be psychologically prepared to integrate digital technologies for teaching in the classroom particularly in primary schools in Uganda. For practice, there is need for policy implementers such as ministry of education and sports through the district education officers to provide psychological support to primary school teachers in order to improve their perceived suitability of digital technologies and their psychological readiness to use digital technologies for teaching.

Keywords:

Psychological Readiness, Digital Education Technologies, Integration, Primary School Teachers

1. INTRODUCTION

The proliferation of Information Communication Technology (ICT) in practically all spheres of the operational lives of human beings has not left the education sector behind. Educationists and teachers more than ever before are required to integrate ICTS into their pedagogy routines. Familiarity with digital technologies and proficiency in their use has become part of the new normal in the educational sector. Similarly, in the age of digitalization, the use of (ICT) in teaching and learning is essential to facilitate the process of learning, and the acquisition of 21st-century skills. ICT has revolutionized the teaching and learning experience of instructors and their students as well [10].

Psychological readiness refers to the individual or collective mindset and preparedness to accept, embrace, and effectively utilize digital technologies on the other hand, Integration of digital technologies involves incorporating ICT tools into various aspects of life or organizational processes. In the Ugandan education sector, psychological readiness and the integration of digital technologies are crucial for addressing various challenges and enhancing the quality of education. There are several Internal

and external factors which may significantly impede ICT integration, leading to negatively affecting teachers' psychological readiness and willingness to face educational challenges. It is critical to investigate the components of the psychological readiness of teachers to uncover the significant barriers that may prevent them from accepting novelties and effectively coping with the demands of the digital world [3].

On this basis, the major problem is the imbalance between the effective implementation of novelties in learning environments and the deficiency of psychological willingness to take part in innovation readily. Being internally reluctant to explore innovative teaching technologies, teachers would deliberately develop a psychological barrier that could prevent them from perceiving the merits of ICTs and, thus, refuse the change brought in education. The broad potential of structuring the psychological preparedness lies in the fact that teachers would have positive attitudes toward implementing ICTs only if they are psychologically ready to adapt quickly to the prevailing changes. Although several studies have probed the integration of ICTs in the teaching/learning process, only a few types of research have investigated the impact of the psychological readiness of teachers on their attitudes about using ICTs in their classroom instruction. With positive attitudes towards implementing digital education technologies, teachers would be emotionally prepared to cope with the prevailing changes in the education sector. Therefore, this research attempts to explore the following question:

RQ1. What is the relationship between the psychological readiness of teachers and the integration of digital technologies for teaching in primary schools in Uganda.

2. LITERATURE REVIEW

2.1 PSYCHOLOGICAL READINESS

Chapnick [7] describes psychological readiness as a person's state of mind in terms of being ready for electronic learning. Similarly, Alsadi and Saleh [2] define psychological readiness as the state of mind for being ready for the use of technology in work place. It reflects one's perceptions, beliefs, reasons, imaginations, perspectives, sentiments, connections, volition, intellectual attributes, expertise, competencies and attitude about the use of educational technologies. It pertains to the confidence in one's ability to perform. According to Beharu [4], psychological factors can lead to failure and fear or uneasiness that inhibits the ability of individuals to function normally. Therefore, psychological readiness helps to keep one's fears under control such that they (fears) do not have the powers to change what their bodies are physically able to do. According to Bubou and Job [6] E-learning as a technology-enhanced approach to education has become a

central feature in the successful running of e-study, e-learning readiness enhances the ability of learners in institutions to persevere and complete their studies. Individuals who are psychologically ready offer less or minimal amount of psychological resistance towards a new innovation. In this study, psychological readiness will be measured using: 1) perceived readiness and 2) perceived suitability.

2.2 INTEGRATION OF DIGITAL TECHNOLOGIES IN TEACHING

The integration of digital technologies in education is continuously gaining the forward motion within educational literature, [12]. Many educational institutions at all levels are increasingly integrating digital technologies to aid in the process of teaching and learning. Hughes [11] defines integration of digital technology in teaching and learning as the use of digital tools by teachers and/ or students to support the constructivist teaching and learning process.

Aktaruzzaman et al. [1] assert that when used appropriately, digital technologies help in expanding access to education to the increasingly digital workplace through information distribution, learning management systems and managing of educational services and make them affordable and available anytime and anywhere.

Coleman et al. [8] contend that the appropriate use of ICT in teaching transforms the learning environment from teacher-centered to learner-centered. They stress that this shifting of emphasis from teaching to learning creates a more interactive and engaging learning environment for teachers and learners thus changing the role of the teacher from knowledge transmitter to that of a facilitator, knowledge navigator and a co-learner. In this study, integration of digital technologies will be measured using: 1) adoption of digital technologies, and 2) usage of digital technologies. According to Yu et al. [20], the incorporation of digital technologies into teaching, with teachers playing a crucial role, undergoes a significant process. This study thus specifically examines the concept of psychological readiness and how it influences the integration of digital technologies in teaching.

2.3 PSYCHOLOGICAL READINESS AND INTEGRATION OF DIGITAL TECHNOLOGIES IN TEACHING

Attitudes influence man's response to objects, situations, products, and persons. Attitude in a general sense is seen as intensity and direction of the sum total of a person's Psychological readiness is considered one of the most important factors and has the highest possibility of sabotaging the implementation process of e-learning [9]. According to Ouma et al. [16], psychological readiness helps to understand the degree to which a teacher believes that using ICTs in the teaching process would be free of effort and enhance his or her teaching.

Worknowledge [16] further argues that when the teachers are psychologically prepared to use digital technologies in teaching, then they find themselves in a better position to support the students or the learners to use the same tools for learning purposes. This therefore, makes psychological readiness one of the most significant aspects that could affect the implementation process of education technologies within an institution [9].

According to [3], Teacher participants express a positive readiness to embrace educational technologies. Primary psychological barriers cited by respondents include a lack of training, inadequate ICT skills, technology-related anxiety, resistance to change, and a lack of perceived benefits. Enhancing teachers' digital competencies, providing ICT training, and exploring the capabilities of ICTs are strongly advised to cultivate emotional readiness among teachers for the effective implementation of Information Technologies. In accordance with to Nchunge et al. [14] inadequate or total lack of psychological preparedness drags perception change which hampers technology acceptance and usefulness in schools, thus creating fear of sustainability of ICT programs.

3. METHODS

3.1 RESEARCH DESIGN

A cross sectional research design was employed in the study given its process in examining a particular phenomenon in a particular time. According to Blumberg [5], a cross sectional research design is often preferred because it is carried out once and also gives a picture of the concept being studied at a given point in time. A quantitative survey approach was adopted since it enables collection of quantitative data, description and drawing inferences from the findings on relationships between the study variables (psychological readiness and integration of digital technologies). Therefore, quantitative data collection instruments were used in the study to collect data from the population selected. The study examined the concepts of psychological readiness and integration of digital technologies among teachers of government aided primary schools in Uganda.

In order to conduct the study, Wakiso district was chosen as the geographical scope with a total of up to 2,721 primary school teachers distributed in the 256 government aided primary schools located in the district [19]. Majority of government aided primary schools are located in Wakiso district which is in central Uganda and also has the highest number of primary schools in the country (Uganda national household survey, 2019-2020).

3.2 SAMPLING PROCEDURE AND DATA COLLECTION INSTRUMENT

Given the known population of the primary school teachers (2,721) in Wakiso district, the study used a sample size of 335 respondents. This sample size was selected of sample size determination which indicates that a population of 2600 to 2799, a sample size of 335 respondents is adequate. The study adopted a purposive sampling technique to select the participating government aided primary schools from which simple random sampling technique was used to select the respondent primary school teachers in each school. A self-administered questionnaire tool was designed and distributed among the respondents for data collection. The choice of this instrument is based on its simplistic design and its ability to enable respondents to read and understand the questions asked. The questionnaire was designed based on a 5 point likert scale ranging from strongly disagree (1), Disagree (2), Not sure (3), Agree (4) and strongly agree (5). Respondents answered the questions based on the extent to which they agree or disagree with the statements in the questionnaire. A research

assistant was trained and hired to collect data from the respondents. Out of the 335 closed questionnaires administered only 162 questionnaires were filled and received back, giving a response rate of 48.4%.

3.3 MEASUREMENT OF VARIABLES

Two variables namely psychological readiness (independent variable) and integration of digital technologies (dependent variable) were examined in this study and were assessed using interval scales established in prior research. Psychological readiness was measured based on indicators and these included perceived readiness and perceived suitability. On the other hand, Integration of digital technologies was measured using measures adopted from Kotrlik & Redmann [13] and these included usage of digital technologies and adoption of digital technologies. All these assessments were based on a 1 to 5 interval scale, where 1 represents strongly disagree and 5 represents strongly agree 5.

3.4 VALIDITY, RELIABILITY AND DATA ANALYSIS

In order to ensure that the data collection instrument is fit for distribution, the instrument was pre-tested using content validity index (CVI) and Cronbach alpha coefficient (CAC). To measure the CVI, a content validity questionnaire structured in a 4 point Likert scale anchored as (1) for Not Relevant, (2) for Somewhat Relevant, (3) for Relevant and (4) for Very Relevant was distributed to two expert judges to give their opinions on the relevance of the questions and whether the questions investigate what they intended to measure. Items found to be irrelevant were eliminated. As a result, content validity analysis produced a CVI of 0.91 for items in psychological readiness and 0.89 for items in integration of digital technologies, hence validity. According to Polit and Beck [17], a research instrument is valid if the CVI is at least 0.8 and above. Further, to investigate for reliability, a pilot study was conducted among 20 respondents and a CAC test was carried out. Saunders and Lewis [18] argue that a research instrument used for data collection should be able to yield similar results at all times. The CAC test established that psychological readiness and integration of digital technologies had a CAC of 0.707 and 0.880 respectively, hence reliability of the research instrument. This is in line with Nunnally and Bernstein [15] who state that reliability values of 0.70 or higher imply consistency among the items in measuring the concept of interest.

Having established the validity and reliability of the research instrument, the final data collection was rolled out to the respondents. Data was returned, tabulated, cleaned, coded and input using SPSS v.23. Descriptive statistics analysis was used to represent the background characteristics of the respondents, whereas, Pearson's correlation coefficient and regression analysis methods were used to examine the nature of relationship and the predictive potential of the independent variable (psychological readiness) on the dependent variable (integration of digital technologies).

4. FINDINGS AND DISCUSSIONS

4.1 RESPONDENTS BACKGROUND CHARACTERISTICS

Majority of the respondents were female (53.7%) followed by their male counterparts (46.3%). This indicated a balanced representation of both genders hence eliminating gender bias. The results also indicated that the respondents were literate and educated given that majority had bachelor's degree and diploma qualifications (50% and 43.8% respectively). Only 6.2% had certificate qualifications. Therefore, they were in position to respond to the questions asked in the study.

4.2 FACTOR ANALYSIS FOR PSYCHOLOGICAL READINESS

The study used factor analysis particularly Principal component matrix analysis with varimax to determine the factor loadings for each factor as well as determine the combined variance explained by factors for each component. The Table.1 below presents the component matrix results for psychological readiness.

Table.1. Component matrix for Psychological Readiness

Rotated Component Matrix – Psychological Readiness	Component	
	Perceived Suitability	Perceived Readiness
It is suitable that I can use digital technologies to teach anywhere anytime	0.803	
Using digital technologies would support my teaching	0.779	
I can distribute/get learning materials, assignments, grades and watch instructional videos via digital technology tools	0.731	
I feel I am ready to integrate digital technologies in my teaching.		0.823
I feel supported in my use of digital technologies for teaching.		0.765
I have sufficient information about the use of digital technologies for teaching.		0.723
Total	**2.445**	**2.152**
% of Variance	**27.164**	**23.912**
Cumulative %	**27.164**	**51.076**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

In Table.1, factor analysis yielded two components which were interpreted as perceived suitability with three factors and perceived readiness also with three factors. Each factor loaded above 70%. Perceived suitability had a Variance of 27.164% and perceived suitability had a variance of 23.912% explaining 51.076% of total variance in psychological readiness.

4.3 RELATIONSHIP BETWEEN PSYCHOLOGICAL READINESS AND INTEGRATION OF DIGITAL TECHNOLOGIES

Using Pearson correlation coefficients and linear regression analysis, the study examined the association between the two variables as well as the predictive potential of the independent variable on the dependent variable as shown in Table.2 and Table.3 respectively.

Table.2. Pearson correlation analysis of study variables

Analysis	1	2	3	4	5	6
Psychological Readiness (1)	1					
Perceived Readiness (2)	.901**	1				
Perceived Suitability (3)	.871**	.572**	1			
Integration of digital technologies (4)	**.154**	.226**	.035	1		
Adoption of digital technologies (5)	.085	.193*	-.058	.939**	1	
Usage of digital technologies (6)	.205**	.232**	.125	.936**	.758**	1

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed)

Source: primary data

Findings presented in Table.2 indicate a statistically not significant positive association between psychological readiness and the integration of digital technologies ($r = .154$, $p = 0.05$). This suggests that positive changes in psychological readiness factors may correspond to positive changes in the integration of digital technologies though slightly insignificantly. Therefore, when teachers' exhibit psychological readiness in terms of perceived readiness and perceived suitability, their integration of digital technologies in teaching slightly changes.

Further, using linear regression analysis method, the study examined the predictive power of psychological readiness on integration of digital technologies for teaching in primary schools in Uganda as shown in Table.3.

Table 3. Regression analysis model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.819	.172		10.593	.000
1 Psychological Readiness	.129	.065	.154	1.969	.051

a. Dependent Variable: Integration of digital technologies in teaching $R = .154a$; $R^2 = .024$; Adjusted $R^2 = .018$; SEE = 0.62147

Source: Primary Data

The study established the predictive potential of psychological readiness on variance in integration of digital technologies. This study sought to answer the research question (RQ1) which stated "What is the relationship between the psychological readiness of teachers and the integration of digital technologies for teaching in primary schools in Uganda". The results indicate that psychological readiness was found to have a positive but not significant predictive power on integration of digital technologies (Beta=0.154, sig= 0.051). This implies that psychological readiness influences integration of digital technologies but not significantly. Therefore, a change in psychological readiness will bring about a (0.154) change in integration of digital technologies though not significantly. Psychological readiness was also found to explain 1.8% of the variance in integration of digital technologies (Adjusted R Square = 0.018). Whereas it is generally argued by other scholars that psychological readiness in its forms of anxiety, fear and presumed lack of skills is one of the most significant aspects that could affect the implementation process of education technologies within an institution, the current study establishes that the psychological readiness positively predicts integration of digital technologies though not significantly.

5. CONCLUSION AND RECOMMENDATIONS

This study examined the influence of psychological readiness on integration of digital technologies for teaching in primary schools in Uganda. A survey was conducted on 335 government aided primary school teachers and it established that psychological readiness positively predicts integration of digital technologies for teaching. When primary school teachers perceive that they are ready to use digital technologies and also perceive that digital technologies are suitable for use in teaching, then integration of digital technologies for teaching will be achieved. Therefore, it is necessary for education stakeholders to provide necessary psychological support to the teachers in terms of skilling and sensitization given that their perceived readiness and perceived suitability will enhance integration of digital technologies for teaching. Stakeholders need to create a conducive psychological environment to motivate teachers to effectively use digital technologies in their classes. However, stakeholders should also tread carefully since psychological readiness is not a strong predictor of integration of digital technologies for teaching.

5.1 THEORETICAL IMPLICATIONS OF THE STUDY

The study contributes to existing literature by presenting empirical evidence on the relationship between psychological readiness and integration of digital technologies for teaching. Evidence is provided in the context of government aided primary schools particularly in Uganda.

5.2 PRACTICAL IMPLICATIONS OF THE STUDY

Stakeholders such as government policy makers, district education officers and management of primary schools need to provide necessary psychological support to the teachers in terms of skilling and sensitization given that their perceived readiness and perceived suitability of the digital technologies will enhance

integration of digital technologies for teaching. Secondly, there is need to create a conducive psychological environment to motivate teachers to effectively use digital technologies in their classes.

REFERENCES

[1] M. Aktaruzzaman, M.R.H. Shamim and C. K Clement, "Trends and Issues to Integrate ICT in Teaching and Learning for the Future World of Education", *International Journal of Engineering and Technology*, Vol.11, No. 3, pp. 114-119, 2011.

[2] M. Alsadi and A. Saleh, "Electronic Health Records Implementation Readiness": *An Integrative Review. Open Journal of Nursing*, Vol 9, No 152-162, 2019.

[3] S. Benmansour and N. Benmansour, "Taking the Wave of Digitalization: Reflection on the Psychological Readiness of Teachers in using Information and Communication Technologies", *Arab World English Journal*, Vol. 8, pp. 121-135, 2022.

[4] W.T. Beharu, "Psychological Factors Affecting Students", *Journal of Education and Practice*, Vol. 9, No. 4, pp. 59-65,2018.

[5] B. Blumberg, "*Business Research Methods*", McGraw-Hill Higher Education, 2012.

[6] G.M. Bubou and G.C. Job, "Individual Innovativeness, Self-efficacy and E-Learning Readiness of Students of Yenagoa Study Centre", *Journal of Research in Innovative Teaching and Learning*, Vol. 65, No. 2, pp. 1-13, 2022.

[7] S. Chapnick, "Are You Ready For E-Learning?", Available at http://blog.uny.ac.id/nurhadi/files/2010/08/Are You Ready_ For_Elearning.pdf, Accessed in 2022.

[8] L.O. Coleman, P. Gibson, S.R. Cotten, M. Howell-Moroney and K. Stringer, "Integrating Computing Across the Curriculum: The Impact of Internal Barriers and Training Intensity on Computer Integration in the Elementary School Classroom", *Journal of Educational Computing Research*, Vol. 54, No. 2, pp. 275-294, 2016.

[9] M. Coopasami, S. Knight and M. Peter, "E-Learning Readiness Amongst Nursing Students", *Journal of Education and Practice*, Vol. 9, No. 20, pp. 35-38, 2018.

[10] S. Ghavifekr. and W.A.W. Rosdy, "Teaching and Learning with Technology Effectiveness of ICT Integration in Schools", *International Journal of Research in Education and Science*, Vol. 1, No. 2, pp. 175-191,2015.

[11] J.E. Hughes, "Indicators of Future Teacher Technology Integration in the Pk-12 Classroom: Trends from a Laptop Infused Teacher Education Program", *Journal of Educational Computing Research*, Vol. 48, No. 4, pp. 493-518,2018.

[12] Y Kauffman and D Kauffman, "The Impact of Competency-Based Learning and Digital Self-Assessment on Facilitating Students Cognitive and Interpersonal Skills", *Advances in Intelligent Systems and Computing*, Vol. 498, pp. 1-11, 2017.

[13] J.W. Kotrlik and D H Redmann, "The Integration of ICT as a Way to Optimize the Teaching-Learning Process in Higher Education in Colombia", PhD Dissertation, Department of Management Studies, Open Universities of Commonwealth Asia, pp. 1-178, 2017.

[14] D.M. Nchunge, M. Sakwa and W. Mwangi, "User's Perception on ICT Adoption in for Education Support in Schools: A Survey of Secondary School Teachers in Thika District, Kenya", *International Journal of Humanities and Social Science*, Vol. 2, No. 13, pp. 17-29,2012.

[15] J C Nunnally, and I H Bernstein, "*Psychometric Theory*", McGraw-Hill, 2020.

[16] G.O. Ouma, F.M. Awuor and B. Kyambo, "E-Learning Readiness in Public Secondary Schools in Kenya", *European Journal of Open, Distance and E-Learning*, Vol. 35, No. 2, pp. 1-7, 2018.

[17] D.F. Polit and C.T. Beck, "The Content Validity Index: Are You Sure you Know What's Being Reported? Critique and Recommendations", *Research in Nursing and Health*, Vol. 29, No. 5, pp. 489-497, 2006.

[18] M. Saunders, P. Lewis and A. Thornhill. "*Research Methods for Business Students*", Prentice Hall, 2023.

[19] Wakiso District Local Government, "Education and Sports", Available at http://wakiso.go.ug/unit/education-sports/, Accessed in 2022.

[20] T. Yu and Y. Liao, "Understanding Factors Influencing Information Communication Technology Adoption Behavior: The Moderators of Information Literacy and Digital Skills", *Computers in Human Behavior*, Vol. 71, pp. 196-208, 2017.