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Original Article

The Influence of Environmental Print on Teachers Behavioural Intention in Enhancing Emergent Literacy Skills in Pre-primary Schools in Shinyanga, Tanzania

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Keywords: *Emergent Literacy Skills, Environmental Print, Perceived Ease of Use, Perceived Usefulness, Perceived Availability.*

ABSTRACT

This study investigated the Perceived Usefulness (PU), Perceived Ease of Use (PEoU), and availability of environmental print on teachers' Behavioural Intention (BI) to enhance emergent literacy skills in pre-primary schools in Tanzania. The study involved 103 pre-primary teachers in Shinyanga District Council. The study used the Technological Acceptance Model (TAM) to assess the influence of environmental print on teachers' behavioural Intention to enhance emergent literacy skills for pre-primary classes. The quantitative study involved a closed-ended questionnaire to gather information from pre-primary teachers regarding the influence of environmental print on pre-primary teachers' BI in enhancing emergent literacy skills.SPSS version 23 was used for data analysis. Before multiple regression computation, there were multiple regression prerequisite tests, namely, linearity of the relationship between independent and dependent variables, outliers and multicollinearity of predictor variables. Multiple regression showed that PEoU and availability of environmental print directly and PU indirectly influence teachers' perceived BI, which is inconsistent with the origin TAM. PEoU and the availability of environmental print influence teachers' BI to enhance emergent literacy skills. The indirect effect of PU may be owing to pre-primary teachers' inability to employ environmental print and teachers' workload. It is advisable to provide primary schools where pre-primary classes are attached with learning resources to assist in developing emergent literacy skills for pre-primary children.

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INTRODUCTION

Environmental print is a cost-effective material that is easily accessible, frequently occurs in and outside the classroom, and can stimulate emergent literacy skills (Giacovazzi et al., 2021). Emergent literacy skills are basic foundational that precede and predict conventional reading and writing, known early before school children (Septiani & Syaodih 2021). According to Castro and Barrera (2019), emergent literacy skills include print knowledge, phonological awareness, knowledge of letters and oral language knowledge. The skills are improved using the child's surrounding environmental print (Colwell, 2000). Environmental print is a non-projected visual aid (Kiptum, 2020; Tabacaru & Bucuroiu, 2021; Neumann et al., 2015) that increases the learning process and is an instructional aid used in the classroom to encourage teaching (Shabiralyani et al., 2015; Linde., 2022). Teachers use visual aids to facilitate understanding concepts as multisensory methods enhance academic performance (Pink, 2011; Maloy et al., 2017; Jensen & Konradsen, 2017; Roy et al., 2021). According to Makau (2016), pre-primary teachers' use of visual aids is influenced by the non-availability of teaching aids and teachers' attitudes and perceptions of particular teaching aids. Given the information, the present study focuses on pre-primary teachers' perception of environmental print based on the availability of teaching aids. Furthermore, Tety (2016) demonstrates that a prevalent issue in most African nations, particularly in rural regions, is the severe scarcity of sufficient instructional resources and visual aids; this is the subject of the present study.

Moreover, young children develop emergent literacy skills when teachers draw their attention to print throughout and outside the classroom (Neumann, Hood, Ford, & Neumann, 2012). Studies show that Behavioural Intention (BI) determines the actual behaviour to use (Gao & Deng, 2012; Fishbein & Ajzen (2010). Furthermore, studies show that the relationship between behavioural Intention and actual behaviour is imperfect (Fishbein & Ajzen, 2010). According to Pulatovna et al. (2022), building the teaching process without behavioural attention is impossible. Other studies show that BI significantly directly affects the actual use of visual aids (Par., 2009; Ndekwa, Nfuka, and John., 2018). Given the information, the current study assessed determinants of pre-primary teachers' BI to use environmental print. TAM is a credible model that shows predictors of BI (King & He., 2006) as an outcome of the present study. The two main predictors include Perceived Ease of Use (PEoU) and Perceived Usefulness (PU) (King & He., 2006). Contradictory results exist regarding the effects of both determinants. Research indicates that PU impacts BI (Tarhini et al., 2016). Conversely, additional research indicates that PEoU positively impacts BI (Tarhini et al., 2016; Wu & Zhang, 2014). The current investigation examined the two factors influencing pre-primary teachers' behavioural intention to utilise environmental print to enhance emergent literacy skills. Furthermore, the current investigation examined the availability of environmental print as an exogenous variable. According to David (1989), external variables originating from TAM impact PU and PeoU. Therefore, the current investigation examined the influence of PU, PEoU, and Availability on the behavioural intention of pre-primary teachers to use environmental print to enhance emergent literacy skills.

Relevance and Contributions of the Study

The research on the influence of PU, PEoU, and availability of environmental print on pre-primary

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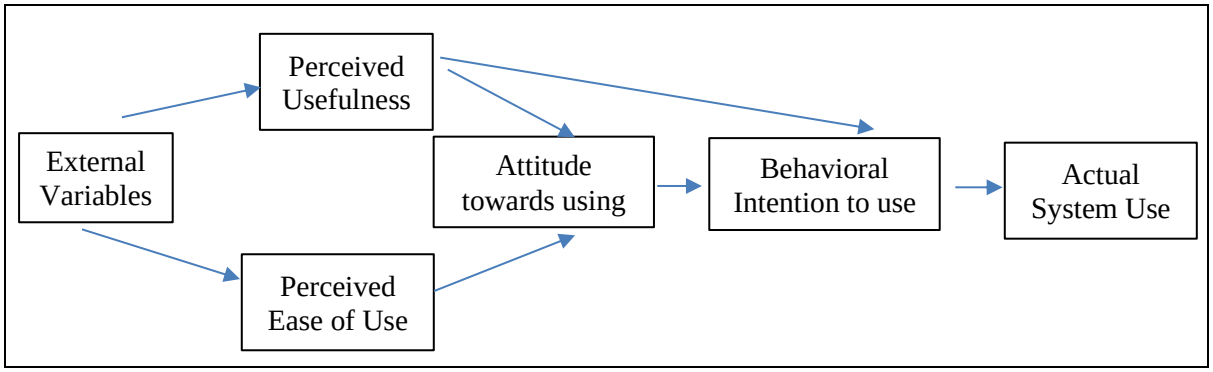
teachers' behavioural intention in enhancing emergent literacy skills in pre-primary classes is pertinent to early learning education provision. Initially, the study provides insight into the correlation between teaching materials, teachers' behavioural Intention to use, and the usefulness and Ease of use of environmental print. Furthermore, the research demonstrates that the influence of instructional material usefulness on developing emergent literacy skills in pre-primary classes for proficient reading and writing is negligible. The availability of print environments and the ease teachers can use them are crucial factors. The research also informed school administrators and educators about environmental print's effectiveness in improving young learners' literacy skills and the need to make teaching materials, including environmental print, easily accessible and ready for use. The research raises concerns regarding the efficacy of instructional materials in improving emergent literacy skills. The Tanzanian educational policy known through MEST places significant emphasis on pre-primary teachers' ongoing professional development (CPD) concerning the practical application of teaching and learning materials.

THEORETICAL FRAMEWORK

The Technology Acceptance Model is one of the most prevalent explanations for Information System usage. TAM has four characteristics that lead to the actual use of technology. These constructs are Perceived Usefulness (PU), Ease of Use (PEoU), attitudes toward using the technology, and Behavioural Intention (BI) to use the technology. According to TAM, the Perceived Usefulness and Perceived Ease of Use constructs are controlled by external variables, as indicated in *Figure 1*.

Figure 1: Technology Acceptance Model (T A M.)



Source: (Davis, Bagozzi & Warshaw 1989).

From *Figure 1*, PU is the potential user's subjective likelihood that employing a particular technology enhances one's action. In the present study, PU is the perceptions of pre-primary teachers regarding the potential of using environmental print to enhance the selected emerging literacy abilities**.** PEoU is how a prospective user anticipates the target system (environmental prints) to be simple. PEoU relates to the extent to which an innovation is perceived as simple and straightforward (Rogers, 2003). In this context, PEoU refers to the belief among pre-primary educators that using environmental print to improve emerging literacy abilities requires little effort. Figure 1 shows that PEOU directly influences PU but not vice versa. Behavioural Intention (BI) is the extent to which a person has developed conscious plans to engage in or refrain from engaging in future behaviour. Therefore, PU and PEU impact the BI's utilization of the technology. Behavioural Intention comprises pre-primary teachers' deliberate goals to use or not use environmental print to enhance emerging literacy skills.

The external variable for the present study was the availability of environmental print. Figure 1 illustrates those external circumstances that influence PU and PEOU in determining behavioural Intention. Figure 1 demonstrates that PEOU influences PU, contrary to the present

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study's goal to investigate how PU and PEoU directly affect behavioural Intention. However, the study also attempted to examine the direct effect of the Availability of environmental Print on BI. The present study excluded the attitude of usage as a mediator between perceptions (PEOU and PU) and BI because of its weak role between the constructs (Chen, Lin, Yeh & Lou, 2013; Giovanis, Binioris & Polychronopoulos, 2012). According to Liu (2010), removing attitudes from TAM leads to a better understanding of the effect of PEOU and PU on the BI construct. Attitude is not one of the constructs in the present study. Moreover, Sun and Zhang (2006) have outlined points to consider when using TAM in the survey; one is to improve TAM by adding an external variable. The present study has noticed this by adding the Availability of Environmental Print.

EMPIRICAL LITERATURE

Studies have shown how PU, PEoU and external variables determine teachers' Behavioural Intention (BI). The PU on Behavioural intention is evidenced by Kalogiannakis and Papadakis (2019) in Greece and Al-Abudullatif (2022) in Saudi Arabia, contrary to Sinaga, Marpaung, Dewi, and Sudirman (2021) and Setiawan and Sieregar (2023). In South Africa, Kim and Jeong (2016) found that PU and external variables influence surveyed in-service teachers' acceptance of computer technology in early childhood education. The role of PEoU on behavioural Intention has been contented by Weng, Yang, Ho, and Su (2018) in Taiwan, who conducted a study using multimedia material in elementary schools for in-service teachers (n = 2317). Mamat, Yusoff, Abdullah, and Razak, (2015). (2015) found that PEOU and external variables influence teachers' behavioural intentions in a virtual learning environment. Other studies like Mailiazar, Almanthari, and Maulina (2021) from secondary school mathematics teachers in Indonesia found PU and PEOU were not significant predictors of teachers' behavioural intentions or had little influence. Salazar et al. (2021) findings are contrary to Sinaga., et al. (2021) that both PEoU and PU positively influence BIGary (2016) investigated teachers' technology adoption, and the author further found external variables that influence teachers' behavioural intentions. Gary's (2016) findings are consistent with those of Budu, Yinping, and Mireku (2018) in Ghana, where the study assessed the impacts of behavioural Intention on tertiary education institutions' E-learning. Kazoka and Mwantimwa (2019) found that perceived Ease of use and usefulness influence behavioural Intention in Tanzania.

In contrast to the present study, previous researchers have evaluated digital technologies such as comics, infographics, and e-learning. None of the earlier works worked on how PU, PEOU, and external variables of TAM predict teachers' behavioural Intention to use environmental print to enhance pre-primary children's literacy skills. Furthermore, no one has addressed the topic of environmental print's effect on emergent literacy skills.

The Study Hypotheses

The present study assessed the influence of PU, PEoU, and Perceived Availability of environmental Print on pre-primary teachers' BI to use Environmental Print to enhance emergent literacy skills. The present study came with the following null hypothesis in answering the objective of the study:

> *Ho_1. PU does not significantly impact the BI using environmental print to enhance emergent literacy skills.*
>
> *Ho_2. PEoU does not significantly impact the BI using Environmental Print to enhance emergent literacy skills.*
>
> *Ho_3. The availability of environmental print has no significant impact on the BI's use of environmental print to enhance emergent literacy skills.*

METHODOLOGY

Study Area and Site

Shinyanga Region, which is located about 30 to 60 km south of Lake Victoria between Latitudes 31∘14 and 35∘11E and Longitudes 2∘15and four∘30S, is administratively divided into 3

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Districts: Kahama, Kishapu, Shinyanga municipal (Shinyanga District Council and Shinyanga Urban District) (Kuchibanda & Mayo (2015) The current investigation encompassed the geographical area of the Shinyanga region, According to UWEZO (2017), between 2011 and 2015, the Shinyanga region was reported to be among the seven areas showing low literacy performance (32%). According to the EQUIP Tanzania baseline assessment conducted in 2014, the Sinyanga region is one of five locations where 77% of the children originate from families where Kiswahili is not the primary language spoken at home (a language minority. In addition, the analysis report for the reading and writing skills assessment for standard two in 2019 (URT 2020) and 2021(URT 2022) was also utilised. According to the report, the Shinyanga region exhibited reading proficiency at a rate of 69.40% in 2019 and 48.72% in 2021, dropping by 20.78, placing it second-to-last after Katavi.

Furthermore, the region achieved a writing proficiency rate of 66.9% in 2019 and decreased to 40.0% in 2021, dropping by 26.9%. In the same way, Shinyanga was ranked second after Simiyu from the bottom. The data shows that the Shinyanga region is doing poorly in both language skills, as it has maintained the second position for the last two years. The information satisfies the inclusion of the region in this study.

The study was conducted explicitly at the Shinyanga District Council. However, the Shinyanga District Council (44%) has performed poorly in literacy (Kiswahili) among children aged 3 to 9 years (UWEZO, 2017). Additionally, in the 2021 Standard Two national assessment, pupils from urban settings performed better than those from rural backgrounds in both Oral Reading Fluency (ORF) and Reading for Comprehension (RC). Furthermore, the results indicate that more pupils from rural schools scored zero on ORF (16.4%) and RC (26.4%) when compared to those from urban schools (URT, 2022). The findings imply that children in rural areas lack the foundation of emergent literacy skills in their early education.). In-service public pre-primary education teachers were purposefully selected from 136 (BEST 2020) public primary schools in Shinyanga District Council.

Study Procedures

The pre-primary teacher group at Shinyanga District Council consisted of N=136 individuals. There are 136 primary schools in the Shinyanga District Council (BEST 2020), and each primary school has one pre-primary class with one pre-primary teacher. According to HAKIELIMU (2017), teachers are essential players in education provision to ensure that children get quality education. The sample size for pre-primary class teachers, with a targeted population of N=136, was S=103 (As per Krejcie and Morgan's Table, whereas the sample size for a population of 140 is S=103, which corresponds to 136 individuals) was determined using a table developed by Krejci and Morgan in 1970 and later updated by Saunders, Lewis, and Thornhill in 2012. The study involved 103 pre-primary teachers who participated in the questionnaire. The study involved a structured questionnaire for data collection administered to pre-primary teachers regarding environmental print on enhancing emergent literacy skills. Of the 103 public pre-primary teachers involved in the study, 94 completed and returned the questionnaires, yielding a 91.2 % return rate. The questionnaire had five sections. Section A included respondents' demographic characteristics; Section B covered teachers' perceived Usefulness; Section C covered perceived Ease of use; and Section D covered environmental print availability. Finally, section E addressed teachers' behavioural goals to employ environmental print. Sections B, C, D, and E were assessed using five Likert scales: 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, and 5=strongly agree favourable to the notion. Data from the questionnaire were coded, entered, and analyzed using (SPSS.) Statistics software version 23.0. Pearson Product-moment Correlation Coefficient was used to determine the significance level, mean, and standard deviation in measuring the strength and show directions for teachers' behavioural Intention to use environmental print.

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Multiple regression was used to analyse the relationship between a single dependent variance (criterion) and several independent variables (predictors) (Haie et al., 2010). The dependent variable in the present study is behavioural Intention, and the independent variables were perceived Usefulness, Perceived Ease of Use, and Availability (external variable) of environmental Print

MEASURES OF VARIABLES

The variables to be measured and assessed include predictors of the pre-primary teacher's behavioural Intention and the outcome variable. Subscales of the variables showed acceptable internal consistency, with Cronbach's alphas ranging from .90 to .98. According to Ghozali (2013), Cronbach alpha values larger than 0.70 are reliable.

Predictors of behavioural Intention to use environmental print involve three variables: PU, PEoU and Availability. The statements in assessing the PU were adapted from Kol (2012) on the 'Attitude Scale for Technological Tools and Materials Use in Preschool Education'. Kol's (2012) scale consisted of a five-point Likert type with 20 statements, of which 14 were positive and six were negative. The adapted scale items had an excellent internal consistency of Cronbach's alpha value of .90. Examples of the items involved in this variable were "*Using environmental print on enhancing emergent literacy skills make the information to children more permanent*" for the positive side and "*I do not need environmental prints in enhancing emergent literacy skills in children" for the opposing side.* PEoU of environmental print is another predictor variable; in the assessment, the researcher adapted statements from Lund (2001), "Measuring usability with the use Questionnaire: Usability interface". The variable comprised nine items; the scale had a 0.96 Cronbach alpha. Examples of the statements in this variable include, "*I can use environmental prints successfully every time I need to,* and *both occasional and regular users of environmental print on enhancing emergent literacy skills would like it.* The last predictor variable is the availability of environmental print, which comprised 11 statements from previous pieces of literature. The scale had Cronbach alpha 0.96, indicating acceptable internal consistency. The variable involved statements like, "*The availability of environmental print depends on the school management decision on use"* and "*Failure to have shared vision in a school influences the availability of environmental print on enhancing emergent literacy skills* to children.

Furthermore, BI used environmental print, an outcome variable with 14 items. The scale had a Cronbach alpha of 0.98, indicating acceptable internal consistency. Examples of the statements that covered the variable included: "*I intend to use environmental print for active participation of children when enhancing emergent literacy skills in children"* and "*I intend to use environmental print as it promotes learner active role on enhancing emergent literacy skills.*"

The Multiple Regression Model adopted in the study

The study adopted the multiple regression model BI=a+b*PoE+b*PU+b*PA+e. From the model, a=alpha coefficient, representing the average value, other factors being constant, b (1 to 3) =beta value for each independent variable, e= epsilon, represents the error term, BI=Behavioral Intention, an Outcome variable, PE= Perceived Ease of Use, PU=Perceived Usefulness, PA=Perceived availability.

STUDY FINDINGS

Participants

Tables 1, 2, and 3 show the demographic characteristics of the participants involved in the study, as well as the teaching and awareness of the use of environmental print in teaching.

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Table 1: Demographic characteristics of participants in the study

Variables	Ranges	Number (N)	%
Gender	Male	48	51.1
	Female	46	48.9
	Total	94	100
Teaching experience in pre-primary classes	1-5 years	74	78.7
	6-10 years	20	21.3
	Total	94	100
Professionalism in early childhood	Certificate in Early Childhood	1	1.1
	No professionalism	93	98.9
	Total	94	100

Research (2021)

Table 1 shows 94 demographic characteristics of pre-primary teachers: 48 (51.1%) males and 46 (48.9%) were the ones who returned the questionnaire; however, 103 pre-primary teachers participated in the study. *Table 1* shows that pre-primary teachers in Shinyanga District Council teach without having basic knowledge of teaching pre-primary children.

Table 2: Pre-primary teachers' workload

Variable	Ranges	n	%
Have you ever attended any seminar or workshop regarding teaching pre-primary classes	Yes	35	37.2
	No	59	62.8
	Total	94	100
Teachers' workload on the number of children in one class	10-20	6	6.4
	21-30	5	5.3
	31-40	6	6.4
	41-50	7	7.4
	51-60	20	21.3
	61-70	6	6.4
	71-80	7	7.4
	81-90	11	11.7
	91-100	6	6.4
	101+	20	21.3
	Total	94	100
Teachers' workload and the classes they teach	Teaching a pre-primary class and class one	90	95.7
	Teaching only pre-primary classes	4	4.3
	Total	94	100

Researcher (2021)

Table 2 shows pre-primary teachers 20 (21.3%) teaching large classes 1: 100, which is against 1:25 (URT, 2016). Additionally, teachers had more work to do as they taught pre-primary classes and class one.

Table 3: Awareness and Use of Environmental Print

Statements	Categories	Response [N (%)]
Have you ever heard about Environmental Print as a literacy learning resource?	Yes	94 (100)
	No	0
Have you ever used environmental print in teaching pre-primary classes	Yes	94 (100)
	No	0
Have you ever used environmental print to develop emergent literacy skills?	Yes	64 (68.1)
	No	30 (31.9)

Researcher 2021.

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From *Table 3*, pre-primary teachers were fully aware of the environmental print and used it to enhance emergent literacy skills.

Statistical Analysis

All the statistical analyses were conducted using SPSS Statistics software 23.0. To assess the normality of data, we checked the skewness and kurtosis of all five continuous variables (Kline 2005). Skewness in the three independent variables included perceived usefulness of -2,103, perceived Ease of use of -2,389, and perceived availability of -2,044. The perceived behavioural Intention to use environmental print, a dependent variable, was -1.926. Kurtosis for perceived usefulness was 6.972, perceived Ease of use was 8.660, Availability of environmental Print was 4.166, and behavioural Intention was 3.087. Griffin and Steinbrecher (2013) agree that numbers between -3 and +3 for skewness and between -10 and +10 for kurtosis are acceptable. The data in the present study were standard and within the acceptable range.

The researcher first presented descriptive results of the variables involved in this study before multiple regression computation. The independent variables were the Perceived Usefulness, Perceived Ease of Use, and Perceived Availability of the environmental print. At the same time, the dependent variable was Behavioural Intention to use environmental print. The descriptive results of the study's variables were presented in *Tables 4*, *5*, *6* and *7*.

Table 4 indicates that most pre-primary teachers, ranging from n= 65(69.9%) to n=81 (86.2%) out of 94 (100%) in all 21 statements, strongly agreed on the usefulness of the environmental print in enhancing emergent literacy skills. In support, the usefulness of the environmental print is indicated in *Table 3*, in which all pre-primary teachers 94 reported using environmental print in teaching pre-primary classes. Moreover, 64 (68.1%) pre-primary teachers out of 94 reported using environmental print to enhance emergent literacy skills. The findings implicate that pre-primary teachers know the usefulness of environmental print in enhancing emergent literacy skills.

Table 5 shows nine statements regarding pre-primary teachers' perceived Ease of use of environmental print. Over fifty per cent of the pre-primary teachers, ranging from 65(69.1%) to 79(84.0) out of 94 (100%), strongly agreed on the Ease of use of the environmental print in enhancing emergent literacy skills in children. Given the findings, it can be said that pre-primary teachers use environmental print, which is tireless to use. Referring to Table 2, the enormous size of most pre-primary classes in Shinyanga District Council might influence the findings. The findings show that most of the 20 (21.3%) pre-primary teachers out of 94 (100%) reported their classes having 100-plus children.

Table 6 on the perceived environmental print availability covered eleven statements that pre-primary teachers had to rate. The pre-primary teachers strongly agreed with all the statements, ranging from n=77 (81.9%) to 61 (64.9%). The most perceived statement by pre-primary teachers 73(77.7%) was "The availability of environmental print in a school depends on the topic of emergent literacy skills to be enhanced". The finding implies that the use of environmental print in enhancing emergent literacy skills depends on its availability. The topic to be enhanced regarding emergent literacy skills has more influence on other factors despite all statements being strongly agreed upon.

Table 7 also shows the highest scores in the percentage of strongly agreed-upon behavioural intention responses by pre-primary teachers. Most pre-primary teachers strongly agreed they intend to use environmental print to enhance emergent literacy skills. The findings imply that pre-primary teachers value the environmental print in enhancing emergent literacy skills.

Before examining the multiple regression, the researcher calculated the linearity of the relationship, outliers via Cook's distance, and multicollinearity. In addition, homoscedasticity was also examined regarding the perceived behavioural Intention to use environmental prints to enhance emergent literacy skills.

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Table 4: Perceived Usefulness of the environmental print in enhancing emergent literacy skills to pre-primary children

Statement of the Environmental Print on Perceived Usefulness	SA	A	D	SD	Total
Environmental print is an indispensable resource to use	74(78.7)	6(6.4)	17(12.8)	2(2.1)	94(100)
Environmental print contributes to enhancing emergent literacy skills	77 (81.9	12(3.2)	4(4.3)	1(1.1)	94(100)
Using environmental print is a waste of time	71(75.5)	3(3.2)	10(10.6)	10 (10.6)	94(100)
Environmental print facilitates the work of pre-primary educators.	73(77.7)	14(14.9)	5(5.3)	2(2.1)	94(100)
The use of environmental print reduces the role of a teacher	69(73.4)	12(12.8)	8(8.5)	5(5.3)	94(100)
The use of environmental print improves emergent literacy skills.	70(74.5)	12(12.5)	8(8.5)	4(4.3)	94(100)
The use of environmental print motivates children to acquire emergent literacy skills	69(73.4)	17(18.1)	7 (7.4)	1(1.1)	94(100)
Environmental print enhances the engagement and clarity of pre-primary educational activities.	71(75.5)	16(17.0)	6(6.4)	1(1.1)	94(100)
Environmental print distracts children's concentration in acquiring emergent literacy skills	71(75.5)	13(13.8)	8(8.5)	2(2.1)	94(100)
Environmental print allows children to understand that alphabet letters and symbols convey messages	72(76.6)	12(12.8)	9(9.6)	1(1.1)	94(100)
It is unnecessary to use environmental print	73(77.7)	8(8.5)	2(2.1)	11(11.7)	94(100)
Environmental print is a suitable tool	70(74.5)	16(17.0)	5(5.3)	3(3.2)	94(100)
Experienced pre-primary teachers do not need to use Environmental print	66(71.0)	1(1.1)	4(4.3)	22(23.7)	94(71.0)
Environmental print helps children to bridge the connection between letters and first efforts to read	80(85.1)	10(10.6)	2(2.1)	2(2.1)	94(100)
Environmental print heightens children's desire to acquire emergent literacy skills	81(86.2)	10(10.6)	1(1.1)	2(2.1)	94(100)
The use of Environmental print reduces teacher-child interaction	65(69.9)	3(3.2)	2(2.1)	24(25.5)	94(100)
Environmental print develops proper images in children's minds, making the information more permanent.	78(83.0)	14(3.7)	-	2(2.1)	94(100)
Environmental print promotes the quick development of emergent literacy skills in children	77(81.9)	13(13.8)	2(2.1)	2(2.1	94(100)
Environmental print materializes abstract concepts in children regarding emergent literacy skills	76(80.9)	13(13.8)	3(3.2)	2(2.1)	94(100)
Environmental print creates an interesting atmosphere for learners to learn easily and clearly	75(79.8)	14(14.9)	4(4.3)	1(1.1)	94(100)
Environmental print is a child's very first exposure to print	76 (80.9	14(14.9)	3(3.2)	1(1.1)	94(100)

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree

Table 5: Perceived ease of use of environmental print in enhancing emergent literacy skills

Statements on Environmental Print on Perceived Ease of Use	SA	A	D	SD	Total
Environmental print is easy to use in enhancing emergent literacy skills	79(84.0)	10(10.6)	4(4.3)	1(1.1)	94(100)
Environmental print is simple to use in enhancing emergent literacy skills	72(76.6)	17(18.1)	4(4.3)	1(1.1)	94(100)
Environmental print is user-friendly to enhance emergent literacy skills.	65(69.1)	22(23.4)	6(6.4)	1(1.1)	94(100)
Environmental print involves the fewest steps in enhancing emergent literacy skills	72(76.6)	17(18.1)	4(4.3)	1(1.1)	94(100)
Environmental print saves time from long and tedious explanatory in enhancing emergent literacy skills	68(72.3)	20(21.3)	5(5.3)	1(1.1)	94(1.1)
I can recover from mistakes quickly and efficiently when using environmental print to enhance emergent literacy skills	68(72.3)	20(21.3)	4(4.2)	2(2.1)	94(100)
I can use environmental print to enhance emergent literacy skills successfully every time I need	72(76.6)	18(19.1)	3(3.8)	1(1.1)	94(100)
Both occasional and Regular users of environmental print on enhancing emergent literacy skills would like it	70(74.5)	19(20.2)	4(4.3)	1(1.1)	94(100)
Environmental print is flexible to use in enhancing emergent literacy skills	69(73.4)	17(18.1)	7(7.4)	1(1.1)	94(100)

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree

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Table 6: Perceived availability of environmental print on enhancing emergent literacy skills

Statements on the Perceived Availability of the Environmental print	SA	A	D	SD	Total
Environmental print is available in a school for use in enhancing environmental print when needed	77(81.9)	15(16.0)	1 (1.1)	1(1.1)	94(100)
The availability of environmental print in a school to enhance emergent literacy skills depends on the availability of resources to make it	68(72.3)	19(20.2)	5(5.3)	2(2.1)	94(100)
The availability of environmental print in a school depends on the topic of emergent literacy skills to be enhanced	73(77.7)	11(11.7)	7(7.4)	3(3.2)	94(100)
The availability of environmental print in a school depends on the school management's decision on its use	71(75.5)	13(12.8)	8(8.5)	2(2,1)	94(100)
The availability of the environment print in a school depends on the influence of the school nurse sllocsd tiin	69(73.2)	9(9.6)	4(4.1)	3(3.2)	94(100)
The availability of environmental print in a school depends on available time to enhance emergent literacy skills	64(68.1)	18(19.1)	8(2.1)	4(4.3)	94(100)
Pre-primary teachers sharing the vision in a school on the use of environmental print in enhancing emergent literacy skills influence its availability.	64(68.1)	17(18.1)	10(10.6)	3(3.2)	94(100)
Clear goals and objectives with defined, measurable outcomes at the school level to enhance emergent literacy skills influence the availability of environmental print	61(64.9)	21(22.3)	10(10.6)	2(2.1)	94(100)
The availability of environmental print depends on pre-primary teachers' comfortability to use it to enhance emergent literacy skills	63(67.0)	20(21.3)	9(9.6)	2(2.1)	94(100)
Pre-primary teachers' instructional vision in enhancing emergent literacy skills influences the availability of environmental print in a school	63(67.0)	21(22.3)	8(8.5)	2(2.1)	94(100)
Pre-primary teachers' accountability pressure influences the availability of environmental print in enhancing emergent literacy skills	64(68.1)	21(22.3)	7(7.4)	2(2.1)	94(100)

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree

Table 7: Perceived behavioural intention to use environmental print in enhancing emergent literacy skills

Statement on Perceived Behavioral Intention to use Environmental print	SA	A	D	SD	Total
I intend to use environmental print as it transforms teachers-centred to children'' environment in enhancing emergent literacy skills	76(80.9)	14(14.8)	3(3.2)	1 (1.1)	94(100)
I intend to use environmental print to create more interactive and engaging learning in enhancing emergent literacy skills	74(78.7)	17(18.1)	2(2.2)	1(1.1)	94(100)
I intend to use Environmental print in designing learning environments for learners' diversity when enhancing emergent literacy skills	74(78.7)	18(19.1)	1(1.1)	1(1.1)	94(100)
I intend to use Environmental print as a literacy tool more often in enhancing emergent literacy skills	73(77.7)	19(20.2)	1(1.1)	1(1.1)	94(100)
I intend to use environmental print to use environmental print during the lesson presentation	75(79.8)	16(17.0)	2(2.1)	1(1.2)	94(100)
I intend to use Environmental print to help children get reality and build knowledge on emergent literacy skills	75(79.8)	15(16.0)	3(3.2)	1(1.1)	94(100
I intend to use Environmental print to strengthen my teaching methodology in enhancing emergent literacy skills	75(79.8)	15(16)	3(3.2)	1 (1.1)	94(100)
I intend to use environmental print while preparing for my lesson to teach on enhancing emergent literacy skills	71(75.5)	20(21.3)	2(2.1)	1 (1.1)	94(100)
I intend to use environmental print as a learning tool for children when enhancing emergent literacy skills	73(77.7)	16(17.0)	4(4.3)	1(1.1)	94(100)
I intend to use environmental print for children's active participation in the acquisition of emergent literacy skills	74(78.7)	15(16.0)	3(3.2)	2(2.1)	94(100)
I intend to use Environmental print because I have adequate knowledge of it in enhancing emergent literacy skills	77(81.9)	14(14.9)	2(2.1)	1(1.1)	94(100)
I intend to use environmental print in facilitating children's emergent literacy skills	75(79.8)	15(16.0)	3(3.2)	191.10	94(1000
I intend to use environmental print in assessing the acquired emergent literacy skills	72(76.6)	18(19.1)	3(3.2)	1(1.1	94(100)

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Linearity of Relationship

Pearson Product correlations, means, and standard deviations of the variables were used to examine multiple relationships between independent variables and a dependent variable (see *Table 4*. Age, level of education, PU, PEoU, Availability, and BI were correlated with the use of environmental print to enhance emergent literacy skills in public pre-primary classrooms. Sex correlated positively with the BI using environmental print, while the availability of environmental print correlated negatively with age and positively with PEoU. PU correlates positively with teachers' education level, PEoU, and behavioural Intention to use environmental print. PEoU positively correlates to teachers' BI when using environmental print.

Table 8: Correlations mean and standard deviations of study variables.

	1	2	3	4	5	6	7
1. Sex							
2. Age	.028						
3. Education Level	-.047	-004					
4. Perceived Usefulness	-.074	-.098	-.253*				
5. Perceived Ease of use	.041	-.129	-.050	.380**			
6. Behavioural Intention	.289**	.054	-.202	.280**	.433**		
7. Availability of Print Materials	..145	-.215*	-.039	.089	.224*	.123	
M				90.65	42.42	66.86	49.23
SD				13.65	4.43	5.79	9.47
Cronbach's alpha			.	.90	,96	.98	,96

*Note. * p< .05 ** p < .01 *** p < .001. Pearson correlations were calculated between all variables.*

Outliers: The study used Cook's distance to assess data points that deviate significantly from the rest of the data (Sweet &Martin, 2012). According to Jauk, Benedek, Dunst, and Neubauer (2013), Cook's distance greater than 0.1 indicates significant data. One regression entry (2.05), with a Cook's distance of > 0.1, was maintained because studies such as Cousineau (2010) have demonstrated that there is no universally accepted theoretical framework for the treatment of outliers. Nevertheless, according to Sweet and Martine (2012), outliers are eliminated if they are erroneous entries or exceptional cases isolated from a common phenomenon.

Multicollinearity. It is the correlation of two or more predictors (Doud, 2017) in a model. This study assessed multicollinearity using the Variance Inflation Factor (VIF) and Tolerance test methods. According to Shrestha (2020), if the value of Tolerance is less than 0.1 or the VIF exceeds ten (10), then it shows that multicollinearity is a problem that must happen between independent variables. The multicollinearity calculation of the present study used three models. The first model measured the availability of environmental Print (1.000 tolerance and 1.000 variances of the inflation factor). The second model measured Ease of use and perceived usefulness (.995 Tolerance and 1.005 variances of the inflation factor). The third model was environmental print availability (.992 to reliance and 1.008 variances of inflation factors), perceived Ease of use (.568 correlation and 1.761 variations of inflation factors), and perceived utility (.5.66 to reliance and 1.766 variances of inflation factors). The results indicated that VIF values were less than five and Tolerance was greater than two-tenths of a standard deviation, both considered optimal without multicollinearity (Shrestha, 2020; Kock& Lynn, 2012; O'Brien, 2007).

Consequently, multiple regressions were utilized to determine the relationship between the independent variables: perceived Usefulness, Ease of use, Availability (an external variable) of environmental Print, and teachers' education level and gender, which served as control factors.

The calculation of multiple regression required two models; the first model included education

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level and sex in regulating study variables as they contributed to the model's stabilization. The second factor includes education level, gender, PU, PUoU, and environmental print availability. In both models, a significant equation was identified. The first model F (2, 91) =4.320, p 0.01) has an R2 of .067, which is 6%, while the second model F (5, 88) =6.708, p.001) has an R2 of.276, which is 27%. The 6% and 27% percentages for the first and second models represent a 21% increase in the predictability of BI based on independent factors. *Tables 5* and *6* give further details.

Table 9: Model Summary

Model	R	R square	Adjusted R	Std Error of estimates
1	.294[a]	.067	.067	8.54
2	.525[b]	.276	.235	7.74

a. Predictors (Constant). Education level, sex
b. predictors (constant), Education level, sex, Ease of use, Availability, and Usefulness.

Table 10: way ANOVA for dependent variables and independent variables

Model		Sum of squares	Df	Mean Square	F	P=Value
1	Regression	631.578	2	315.789	4.320	.016[b]
	Residual	6651.624	91	73.095		
	Total	7283.202	93			
2	Regression	2009.960	5	401.992	6.708	.000[c]
	Residual	5273.243	88	59.923		
	Total	7283.202	93			

a. Dependent Variable: Behavioral Intention of using environmental print
b. Predictors (Constant): Education Level, Sex
c. Predictors (Constant) Education Level, Sex, Perceived Ease of use, Perceived Usefulness, and Availability of environmental Print (EP.)

Table 7 shows how perceived Ease of use, usefulness, and availability of environmental print predict teachers' behavioural Intention to use environmental print to enhance emergent literacy skills.

Table 11: Predictors of behavioural intentions to use environmental print

Model	β	Std Error	Beta	T	P=Value
model 1(constant)	63.42***	3.91		16.21	.000
Sex	4.317**	1.76	.24**	2.44	.016
education level	-3.47	2.29	-.15	-1.51	.133
model 2 (constant)	32.79***	8.15		4.02	.000
Sex	3.90	1.62	.22**	2.40	.018
Education level	-2.84	2.17	-.12	-1.30	.195
Availability of EP.	.258***	.08	.27***	2.99	.004
Ease of use of EP.	.433**	.16	.32**	2.64	.010
The Usefulness of EP.	-.002	.08	-.00	-.02	.982

*Note. * p< .05; ** p < .01; *** p < .001. B = Regression coefficient; Beta = Standardized regression coefficient*

Based on the two models in *Table 7*, the respondents predicted BI equal to β=63.428 = 63.428 + 4.317 (sex) + -3.47 (educational level) and = 32.794 +.258 (Availability of environmental Print) +.433 (perceived Ease of use) +-002 (perceived usefulness). Whereas sex is coded and measured by one male and two females, perceptions of Availability, Ease of use, and Usefulness of environmental Print were coded and measured as 5 = strongly agree, 4 = agree, 3 = not aware, 2 = disagree, and 1 = strongly disagree. Therefore, sex, perceived Ease of use, and Availability of environmental Print significantly influence behavioural Intention toward the use of

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environmental print. The finding accepts null hypothesis one (*Perceived Usefulness had no positive significant impact on the behavioural Intention to use environmental print to enhance emergent literacy skills)*. The Null hypotheses two and three were rejected.

DISCUSSION

The perceived Ease of use and the availability of environmental print directly influence teachers' behavioural intentions to use environmental print to enhance emergent literacy skills. The findings of this study are consistent with Yusoff, Abdullah, and Razak (2015) in Malaysia preservice preschool trainees in a virtual learning environment.

Despite variances in context and examined population, this study concurs with Weng et al. (2018) on PEoU and Behavioural Intention (BI). The present study also concurs with Sinaga et al. et al. (2021) and Setiawan and Siregar (2023) on the insignificant Perceived Usefulness (PU) of Behavioral Intention (BI). Additionally, the present study's findings contradict Sinaga et al. (2021), who stated that PEoU and PU directly influenced behavioural intention to use. Other studies contradict the findings that PEoU was insignificant for BI (Octavika, 2020). However, the findings of Kalogiannakis and Papadakis (2019), Marco et al. (2021), Al-Abudullahtif (2022), Kayanda (2022), Kim and Jeong (2016), and Chiou (2011) contradict those of the present study as perceived usefulness directly affects teachers' behavioural intentions to use instructional materials. The findings of this study concur with related previous studies by Gary (2016), Marco et al. (2021), Kim and Jeong (2016), and Malliar et al. (2021) on the direct and significant impact of the external variable on teachers' behavioural intentions. Hong et al. (2021) and Shittu et al. (2017) are inconsistent with the present study in which external variables indirectly influence teachers' behavioural Intention to use learning materials.

Moreover, the lack of a correlation between perceived usefulness and teachers' behavioural Intention to use environmental print in the present study may be related to pre-primary teachers' incapacity to use environmental print to enhance emergent literacy skills. Mailizar et al. (2021) found that perceived Ease of use only affects beginner users, not experienced teachers. The perceived usefulness of the present study had little effect on behavioural Intention since most pre-primary instructors in Shinyanga are new to teaching. Demographic data shows. 78.7% (see Table 1) had experience teaching pre-primary classes for 1–5 years. PEOU and BI's considerable association may be due to teachers' lack of expertise in teaching pre-primary classrooms or enhancing emergent literacy skills. *Table 1* shows that most pre-primary teachers teach with no professionalism. Studies have linked poor perceived usefulness scores to inadequate teachers' educational tactics and support (Okumus, Lewis, Wiebe, & Hollebrands, 2016). Another issue is pre-primary instructors' ignorance of emergent literacy learning resources (Hong et al., 2021). Contrary to Hong et al. (2021), Shinyanga District Council pre-primary teachers were aware of environmental print and used it to improve emerging reading abilities (*Table 2*).

Furthermore, Sahil and Ibilli (2016), Hong et al. (2021), Shittu et al. (2017), Mihai (2020), and Kazoka and Mwantimwa (2019) are also contrary to the present study findings. Previous studies have shown that perceived Usefulness and Ease of Use influence teachers' behavioural intentions to use learning materials. The inconsistency might be because the last related literature used digital learning tools, although previous related studies differed in the unity analysis used for each survey. For instance, Sahil and Ibili (2016) and Hong et al. (2016) researched in-service teachers from elementary classes and preschool education, respectively. The same can be seen in Mihai (2020), who worked in primary and secondary schools, and Kazoka and Mwantimwa (2019), who worked in higher education. Given the information, the present study could have the same findings as the previous related works since it also used in-service teachers of pre-primary classes (the same as Hong et al. 2016). The

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inconsistency is because the present study was done on prints, while previous related studies were done on digital. It implies that TAM is significant in different contexts and with diverse populations studied. Mailliazar et al. (2021), Gary (2016), and Budu et al. (2018) also found no direct effect of perceived Usefulness or Ease of use on perceived teachers' behavioural Intention to use learning resources.

On the other hand, studies by Milutinovic (2022), Akar (2019), Sahin and Ibilli (2016), Hong et al. (2021), Kazoka and Mwantimwa (2019), and Joo et al. (2018) are also inconsistent with the present study, these previous studies found a combination of perceived usefulness and perceived Ease of use, together with external variables, directly influence teachers behavioural intentions in various learning contexts and the goal of the study. Furthermore, the present study is inconsistent with the original TAM on the role of perceived usefulness. Holden and Rada (2011) indicate that perceived usefulness is more influential on TAM elements than its absence. Furthermore, the present findings also suggest the direct influence of external variables and perceived Ease of use on teachers' behavioural Intention to use learning materials and environmental print in this context, which contrasts with the original TAM.

TAM and its Application in the Present Study

According to Sun and Zhang (2006), participant type and the study setting influence the model's explanatory power. In the present study, pre-primary teachers have much to do with the instructional workload. Most teachers reported teaching pre-primary and lower primary classes 90 (95.7%) (See *Table 1*). The findings give insight into why the perceived Ease of use has been a significant predictor of BI's use of environmental print. Dorji and Wangchuk (2022) found that teachers' workloads hurt classroom teaching and learning due to limited time for lesson planning and task assessment. It implies that pre-primary education teachers don't have time to prepare the learning materials based on the information discussed, which affects the authentic development of literacy skills. Additionally, most pre-primary teachers reported a large number of children in one class see Table 2 which is contrary to Tanzania Pre-primary Curriculum (2016) of 1:25. Pre-primary teachers' workload and a large number of children in one class also reasons for the Availability and PEoU of environmental print as determinants of teachers' BI to use the environmental print and not PU.

CONCLUSION

The PEoU and Availability of environmental print substantially influence the BI of pre-primary education teachers' use of environmental print to enhance children's emergent literacy skills. According to the TAM, which served as a framework for this research study, PU does not directly influence Behavioural Intention.

Recommendations to School Heads and Managers

A current study recommends to school heads and managers that learning resources be available in schools.

REFERENCES

Al-Abdullatif, A. M. (2022). Towards digitalization in early childhood education: Preservice teachers' acceptance of using digital storytelling, comics, and infographics in Saudi Arabia. *Education Sciences*, *12*(10), 702.

Budu, K.W.A., Yinping, Mu., i Mireku, K. (2018). KInvestigating The Effect of Behavioral Intention on E-learning Systems Usage: Empirical Study on Tertiary Education Institutions in Ghana. *Mediterrane an Journal of Social Sciences*. 9 (3).

Castro, D. A. S., & Barrera, S. D. (2019). The contribution of emergent literacy skills for Early reading and writing achievement. *Trends in Psychology*, *27*, 509-522.

Chen, Y.C. Lin, Y.C. Yeh, R.C. & Lou, S.J. (2013). Examining factors affecting college Students Intention to use web-based instruction systems: Towards an integrated

Article DOI: https://doi.org/10.37284/eajes.7.2.1937

model. *Turkish Online Journal of Educational Technology*, 12(2), 111-121.

Chiou Y-F (2011). Perceived Usefulness, Perceive Ease of Use, Computer Attitude, and Using Experience of Web 2.0 Applications as Predictors of Intent to Use Web 2.0 by Preservice Teachers for Teaching. Ph.D. dissertation. Ohio University.

Colwell, Kathleen Marie, (2000) "Environmental print and emergent literacy".

Cousineau, D & Charter, S (2010). Outliers detection and treatment: *a review*. Vol3, No 1, http://doi:org//10.21500/20112084.844.

Davis, F.D (1989). Perceived usefulness, perceived Ease of use, and user acceptance of information technology. MIS Q Manag Inf Syst. 13(3):319. doi:10.2307/249008

Daoud, J. I. (2017). Multicollinearity and Regression Analysis. *Journal of Physics: Conference Series*, 949, Article ID: 012009. https://doi.org/10.1088/1742-6596/949/1/012009.

Dorji, S., & Wangchuk, S. (2022). Teacher's Workload and its Efficacy in Classroom Teaching in Primary Schools Under Punakha Dzongkhag. *Acta Scientific PAEDIATRICS (ISSN: 2581-883X)*, *5*(4).

Fishbein, M., & Ajzen, I. (2010). Predicting and changing behaviour: The reasoned action approach. New York: Psychology Press (Taylor & Francis).

Gao, T., and Deng, Y. (2012). "A study on users' acceptance behaviour to mobile e-books application based on UTAUT model," in Proceedings of the ICSESS 2012 - 2012 IEEE 3rd International Conference on Software Engineering and Service Science, (Beijing), 376–379. doi: 10.1109/ICSESS.2012.6269483

Gary, W (2016). The behavioural intentions of Hong Kong primary teachers in adopting educational technology. *Educational Technology Research and Development 64(2)* DOI: 10.1007/s11423-016-9426-9.

Gerde, H. K., Goetsch, M. E., & Bingham, G. E. (2016). Using print in the environment to promote early writing. *The Reading Teacher*, *70*(3), 283-293.

Ghozali, I. (2013). *Advanced Multivariate Analysis Application with IBM SPSS* 21 Program (7th Edition). Diponegoro University Publisher: Semarang

Giacovazzi, L., Moonsamy, S., & Mophosho, M. (2021). Promoting Emergent Literacy in Under-Served Preschools Using Environmental Print. *South African Journal of Communication Disorders*, 68(1), a809. https://doi.org/10.4102/sajcd.v68i1.809 .

Giovanis, A. N., Binioris, S., & Polychronopoulos, G. 2012. An Extension of the TAM Model with

IDT and Security/Privacy Risk in the Adoption of Internet Banking Services in Greece. *EuroMed Journal of Business*, 7 (1), 24- 53.

Griffin, M. M., & Steinbrecher, T. D. (2013). Large-scale datasets in special education Research. In *International review of research in developmental disabilities* (Vol. 45, pp. 155-183). Academic Press.

Hair, J. F., JR., Black, W. C., Babin, B. J., & Andersen, R. E., (2010). *Multivariate Data analysis* (7th ed.). Upper Saddle River, NJ: Pearson Prentice Hall. 280.

Hakielimu, (2017). *The State of Accountability in the Education Sector in Tanzania*. Education Development Program. Country case prepared for the 2017 Global Education Monitoring Report Accountability in Education Meeting our Commitments. UNESCO

Holden, H., & Rada, R. (2011). Understanding the influence of perceived usability and Technology self-efficacy on teachers'

Article DOI: https://doi.org/10.37284/eajes.7.2.1937

technology acceptance. *Journal of Research on Technology in Education*, *43*(4), 343-367

Hong, X., Zhang, M & Liu (2021). Preschool Teachers' Technology Acceptance During the COVID-19: An Adapted Technology Acceptance Model. *Educational Psychology*. Volume 12- 2021. http://doi.org/10.3389/fpsyg.2021.691492.

Jauk, E., Benedek, M., Dunst, B., & Neubauer, A. C. (2013). The relationship between intelligence and creativity: New support for the threshold hypothesis by means of empirical breakpoint detection. *Intelligence*, *41*(4), 212-221.

Jensen, L., & Konradsen, F. (2017). A review of virtual reality head-mounted displays in education and training. Education and Information Technologies, 23 (4), 1515–1529. https://doi-org.am.e- information. Ro/10.1007/s10639-017-9676-0.

Kayanda, A.M (2022). Information systems integration for better decision-making in Tanzanian Higher Education Institutions. *International Journal of Education and Development using Information and Communication Technology* (IJEDICT), 2022, Vol. 18, Issue 2, pp. 163-176.

Kazoka, J.K. & Mwantimwa, K (2019). Perceived Usefulness and Ease of Use of Web 2.0 Tools in university teaching and learning in Tanzania. *University of Dar es Salaam Library Journal* 14(2) pp-19-37

Kalogiannakis , M & Papadakis, S. J (2019). Evaluating Preservice Kindergarten Teachers' Intention to adopt and use tablets in teaching practice for natural sciences. *International Journal of Mobile Learning and Organisation*. 13 (1): 113. DOI: 10.1504/IJMLO.2019.096479.

Kiptum, C. K. (2020). Evaluating the Frequency of Use of Non-Projected Media Resources in the Teaching Geography in Public Secondary Schools in Koibatek Sub County.

Kim, Y & Jeong, I (2016). The Acceptance of Computer Technology by Teachers in Early Childhood Education. *Interactive Learning Environment*. 25 (4).

King, W. R., & He, J. (2006). A meta-analysis of the technology acceptance model. *Information & Management*, *43*(6), 740-755.

Kock, N., & Lynn, G. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems*, *13*(7).

Kol, S. (2012). Okul öncesi eğitimde teknolojik araç-gereç kullanımına yönelik tutum ölçeği geliştirilmesi. Kastamonu Eğitim Fakültesi Dergisi, 20, 543-554.

Joo, Y. J., Park, S., & Lim, E. (2018). Factors Influencing Preservice Teachers' Intention to Use Technology: TPACK, Teacher Self-efficacy, and Technology Acceptance Model. *Educational Technology & Society*, 21(3), 48–59.

Linde, J. (2022). A Study of Teachers' Perspective on Use of Visual Aid in English Education in Primary School, Year 1-3.

Liu, X. (2010). Empirical testing of a theoretical extension of the technology acceptance model: An exploratory study of educational wikis. *Communication Education*, 59(1), 52-69. doi:10.1080/03634520903431745n.

Lund, A. M. (2001). Measuring usability with the USE questionnaire.Usability Interface, 8(2), 3–6.

Mailizar, M., Almanthari, A. & Maulina, S (2021) Examine Teachers' Behavioral Intention to Use E-learning in Teaching of Mathematics: A extended TAM 13(2). *Journal of Contemporary Educational Technology*. http://doi.org/10.30935/cedtech/9709.

Maloy, R., Trust, T., Kommers, S., LaRoche, I., & Malinowski, A. (2017). 3D modelling and printing in history/social studies classrooms: Initial lessons and insights. Contemporary

Article DOI: https://doi.org/10.37284/eajes.7.2.1937

Issues in Technology and Teacher Education, 17 (2), 229–249.

Mamat, I., Yusoff, A. S. M., Abdullah, W. S. W., & Razak, F. Z. A. (2015). Factors Contributing Preschool Trainees Teachers Adoption of Virtual Learning Environment: Malaysian Evidence. *Turkish Online Journal of Educational Technology-TOJET*, *14*(2), 73-79.

Marco, R., Birke, A., & Kaspar, K. (2021). Teaching with digital games: How intentions to adopt digital game-based learning are related to personal characteristics of preservice teachers. *British Journal of Educational Technology*, *53*(5), 1412-1429.

Mihai, MA. (2020). The use of interactive whiteboards in urban Gauteng classrooms. Perspectives in Education: 38 (2) DOI: https://doi.org/10.18820/2519593X/pie.v38.i2.21.

Neumann, M. M., Hood, M., Ford, R., & Neumann, D. L. (2012). The role of environmental print in emergent literacy. *Journal of Early Childhood Literacy*, 12, 231–258.

Neumann, M.M (2014). Using environmental print to foster emergent literacy in children from the low-SES community. Early Childhood Research Quarterly, 310-318.

Neumann, M. M., Summerfield, K., & Neumann, D. L. (2015). Visual attention to print-salient and picture-salient environmental print in young children. *Reading and Writing*, *28*, 423-437.

Ndekwa, A. G., Nfuka, E. N., & John, K. E, 2018. An Analysis of Behavioral Intention toward Actual Usage of Open-Source Software among Students in Private High Learning Institutions in Tanzania. *International Journal of Advanced Engineering, Management and Science*, 4(3), 175–181.

Octavika, A. M. (2020). The Influence of Perceived Usefulness, Ease Of Use, Behavioral Control, Security And Trust Towards The Behavioral Intention To Use Go-Pay (A Case Study On Accounting Students In Universitas Brawijaya). *Jurnal Ilmiah Mahasiswa FEB*, *8*(2).

Okumuş, S., Lewis, L., Wiebe, E., & Hollebrands, K. (2016). Utility and usability as factors influencing teacher decisions about software integration. *Educational Technology Research and Development*, *64*, 1227-1249.

Pink, S. (2011). A multisensory approach to visual methods. In The SAGE Handbook of Visual

Research Methods (pp. 601-614). SAGE Publications Ltd, https://www.doi.org/10.4135/978144626827.

Pulatovna, N. G., & Pavlovna, D. E. (2022). The Role Of Visual Teaching Aids In The Formation Of Educational Activities Of Younger Students. *European International Journal of Multidisciplinary Research and Management Studies*, *2*(11), 116-121.

Rogers, E. M. (2003). Diffusion of innovations (5th ed.), New York: Free Press.

Roy, C., Dalla Bella, S., Pla, S.,& Lagarde, J. (2021). Multisensory integration and behavioral stability. Psychological Research. 85, 879–886 https://doi- org.am. E-information. ro/10.1007/s00426-019-01273-4

Sahin, S & Ibilli , E (2016). The use of cartoons in elementary classrooms: An analysis of teachers' behavioural Intention in terms of gender. *Educational Research and Reviews*. 11(8), pp. 508-516. DOI: 10.5897/ERR2015.2119.

Septiani, N., & Syaodih, E. (2021, March). Emergent literacy in early childhood. In *5th International Conference on Early Childhood Education (ICECE 2020)* (pp. 52-55). Atlantis Press

Setiawan, R. A., & Siregar, O. M. (2023). The Effect of Perceived Ease of Use and Perceived Usefulness on Behavior Intention Digital Payment OVO in Pematangsiantar City.

Article DOI: https://doi.org/10.37284/eajes.7.2.1937

Shabiralyani, G., Hasan, K. S., Hamad, N., & Iqbal, N. (2015). Impact of visual aids in enhancing the learning process case research: District Dera Ghazi Khan. *Journal of education and practice*, *6*(19), 226-233.

Shittu, A.T,, Kareem, B.W., Obielodan, O.O & Fakomogbon, M.A (2017). Investigating Predictors of Preservice Science Teachers Behavioral Intention e-resources for Teaching in Nigeria. *Contemporary Educational Technology*, 8(2), 142-157

Shrestha, N. (2020) Detecting Multicollinearity in Regression Analysis. *American Journal of* Applied Mathematics and Statistics, 8, 39-42.

Sinaga, O. S., Marpaung, F. K., Dewi, R. S., & Sudirman, A. (2021). Kontribusi perceived usefulness, perceived Ease of use, and perceived security terhadap behavioural intention to use aplikasi JAKET. *Insight Management Journal*, *1*(3), 86-94.

Sweet. S. & Martin. K. (2012). *Data Analysis with SPSS:* A First Course in Applied.

Sun, H. and Zhang, P. (2006) The Role of Moderating Factors in User Technology Acceptance. *International Journal of Human-Computer Studies*, 64, 53-78. https://doi.org/10.1016/j.ijhcs.2005.04.013.

Tarhini, A., Elyas, T., Akour, M. A., & Al-Salti, Z. (2016). Technology, demographic characteristics and e-learning acceptance: a conceptual model based on extended technology acceptance model. *Higher Education Studies*, 6(3), 72-89.

Tety, J. L. (2016). *Role of Instructional Materials in Academic Performance in Community Secondary Schools in Rombo District"* (Doctoral dissertation, The Open University of Tanzania).

URT (2016). Curriculum and Syllabus for Pre-Primary Education. Min Ministry of Education, Science and Technology.

URT (2022). *Standard Two National Assessment. Report on Reading, Arithmetic and Writing Assessment*. NACTE, Dar es Salaam.

UWEZO. (2017). Are our children learning? Annual learning assessment report. From UWEZO Retrieved from http://www.uwezo.net

Weng, F., Yamg, R.J., Ho, H. J. & Su, H.M (2018). A TAM-Based Study of the Attitude towards Use Intention of Multimedia among School Teachers. Appl. Syst. Innov. 1(3),36 Retrieved from https://doi.org/10.3390/asi10 30036

Wu, B., & Zhang, C. (2014). Empirical study on continuance intentions towards E-Learning 2.0 systems. Behaviour & Information Technology, 33(10), 1027-1038.

