## **RELATIONSHIP BETWEEN DIGITAL COMPETENCE AND LANGUAGE INSTRUCTION AMONG ECDE TEACHERS IN UPPER EASTERN, KENYA**

**Oyieno Ouma Moses, Hannah Kangara, John Ogembo and Monica Ituma** Department of Education, Chuka University, Chuka, Kenya

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## ABSTRACT

ECDE teachers' digital competence is crucial in the integration of learning of children in the ECDE Units which requires availability and utilization of digital resources in the instructional process. The study sought to analyze the relationship between ECDE teachers' digital competence and language instruction among ECDE teachers in upper Eastern Counties in Kenya. Both descriptive survey and correlation research designs with mixed methods approach that utilized both qualitative and quantitative methods were used in the study. A sample of 365 comprising of 181 language teachers, 181 head teachers and 3 ECDE County Directors. was obtained from a population of 4,021 Data was collected using questionnaires and interview schedules from 339 respondents giving the study a response rate of 93.15%. Qualitative data obtained was analyzed thematically while quantitative data was analyzed using descriptive and inferential statistics with the help of Statistical Packages for Social Sciences (SPSS) version 27.0 computer software. Frequencies and percentages were used to describe the existing relationship between study variables while hypothesis was tested using logistic regression at 95% level of significance. The results showed that teachers' digital competence is positively and significantly related with language instruction. It is therefore recommended that there is need to provide targeted training and professional development programs for ECDE teachers to enhance their proficiency in utilizing digital resources for instruction.

Keywords: ECDE Teachers' digital competence, language instruction, digital resources.

## **1. INTRODUCTION**

Acquiring language skills is one of the most significant milestones for a child, setting the groundwork for future educational endeavors and social interactions [19]. In ECDE, learning typically involves the development of receptive language skills (the understanding and interpretation of spoken language) and expressive language skills (the ability to express thoughts and ideas via words and sentences). Language plays a crucial role in the child's holistic development, imparting cognitive growth by facilitating more abstract and logical thinking [31]. Proficient language abilities and enhance children's educational success in school, spanning areas such as comprehension of written material, written expression, and understanding complex instruction across a range of subjects. Hence, it is necessitating the employment of the most effective methods of language instruction, including digital learning. The proficiency and preparation of the teacher in language instruction also significantly influences its delivery to the students [10]. Further, the lack of basic digital skills in teachers, essential for language teaching, could potentially hinder language acquisition [14]. The early learning of language is paramount for a child, aiding in the enhancement of self-perception, self-expression, and social interaction. Numerous studies have investigated the intricacies of language development in children. Despite

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limited instructional support, intentional teaching of language literacy is a frequent occurrence, albeit with restricted learners' participation [5]. Another study by [3] point out that policy is established to reinforce instruction quality in pre-schools, particularly in areas where educational quality is substandard. Hence, there's a pressing need to enhance content instruction in the pre-schools including instruction of language.

The purpose of the study was to investigate the relationship between teachers' digital competence and language instruction among ECDE teachers in upper Eastern Counties in Kenya. Digital competence and language instruction within Early Childhood Development and Education (ECDE) encompass skillful utilization of digital technologies to enhance language instruction for young children [7]. Skillful utilization implies a purposeful and adept application of digital technologies in language instruction. It goes beyond mere use and emphasizes the thoughtful integration of technology to enhance the learning experience. This integration entails deploying a spectrum of skills, strategies, and approaches that educator apply to cultivate language advancement within the setting of digital tools and resources. Educators proficient in digital competence within ECDE harness digital assets like interactive applications, electronic books, and multimedia content to craft captivating language learning undertakings [12]. These tools serve to elevate vocabulary acquisition, phonological discernment, and aptitude for comprehension, all while infusing the learning process with enjoyment for the young learners.

Another study by [20] found out that digital instruments facilitate a multi-faceted approach to language instruction, allowing children to engage with text, imagery, sound, and visual content. Instructors can adeptly employ this approach to accommodate varied learning styles and inclinations, bolstering a more comprehensive grasp of linguistic constructs. Digital platforms expedite instantaneous communication and collaboration among young learners [23]. Educators can contrive exercises that encourage children to partake in discussions, exchange ideas, and jointly embark on projects, thereby nurturing language proficiencies related to oral expression, auditory discernment, and interpersonal connections. Previous studies have highlighted the potential of digital resources in language instruction [20]. The multi-faceted approach facilitated by these tools allows for diverse engagement, real-time interaction, and the nurturing of various language proficiencies among young learners. This reinforces the idea that technology, when used intentionally, can significantly enhance the language learning experience for students.

Endowed with digital proficiency, teachers possess the capacity to customize language instruction to individual requisites and developmental stages. Adaptive software and online platforms can furnish tailored language exercises and evaluations, thereby enabling each child to advance at a pace attuned to their unique trajectory [22]. Digital tools present an avenue to celebrate and embrace the diverse linguistic and cultural tapestry of ECDE classrooms. Educators can infuse multilingual content, weaving in songs, narratives, and activities that mirror the diverse backgrounds of their students. Digital proficiency empowers teachers to tailor language instruction according to the specific needs and developmental stages of individual students. This customization acknowledges the diversity in learning styles and rates of development among young learners. The integration of adaptive software and online platforms facilitates the creation of personalized language exercises and assessments. This enables each learner to progress at a pace that aligns with their unique learning trajectory. Digital tools serve as a means to celebrate and embrace the diverse linguistic and cultural backgrounds present in ECDE classrooms. Teachers can integrate multilingual content, incorporating languages and cultural elements that reflect the rich tapestry of their students [6]. The use of songs, narratives, and activities provides a

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holistic approach to language instruction. These elements not only facilitate language learning but also contribute to a culturally inclusive and engaging educational environment. The digital approach acknowledges and addresses the diverse backgrounds of students. It emphasizes inclusivity by recognizing and valuing the linguistic and cultural diversity within the classroom. Digital tools can contribute to creating equitable learning opportunities, ensuring that students from various linguistic and cultural backgrounds have access to resources that resonate with their experiences.

Mastery of digital competence empowers teachers to harness technology for evaluative assessment and feedback [9]. They can meticulously monitor students' linguistic progress, pinpoint areas meriting enhancement, and dispense timely guidance to steer their advancement. Moreover, they added that digital implements serve as conduits for communication between teachers and parents, affording parents the opportunity to play an active role in their child's linguistic journey. Instructors can disseminate updates, resources, and recommendations for language enrichment within the home environment [28]. The integration of digital competence into language instruction in ECDE learning expands the scope for enhancing language proficiencies and holistic literacy development. By adroitly and intentionally leveraging digital tools, educators can craft vibrant, interactive language learning experiences that nurtures young children a sense of confidence and competence in communication. The mastery of digital competence among teachers in ECDE settings enhances language instruction by facilitating evaluative assessment, fostering effective communication with parents, and expanding the scope for language proficiencies and holistic literacy development. The intentional use of digital tools allows educators to create vibrant and interactive language learning experiences, fostering young children's confidence and competence in communication.

Language development encounters various obstacles, including interference from the mother tongue [8], cultural backgrounds and teachers' experiences [1], learners' lack of motivation, and instructors' inadequate preparation [32] Amid these challenges, there's a growing call to enhance language instruction globally, regionally, and locally. Teachers employ distinct instructional methods to effectively cover their language content, categorized as either participatory or nonparticipatory [27]. Non-participatory methods, which exclude learners from active involvement in the learning process, include question-and-answer sessions, songs, storytelling, lectures, and chalkboard notes. Participatory methods, however, involve both the learner and the teacher in the learning process and include role play, problem-solving, simulation, outdoor lessons, case studies, discovery learning, brainstorming, and use of digital resources. The challenges in language instruction, such as interference from the mother tongue, cultural influences, learner motivation, and instructor preparation, highlight the complexities involved in language instruction. The growing call to enhance language instruction underscores the need for effective strategies. The categorization of instructional methods into participatory and non-participatory provides insights into different approaches, emphasizing the importance of active learner engagement for effective language development.

Incorporating digital resources in learning enables teachers to integrate both participatory and nonparticipatory instructional methods [16]. Nevertheless, effective implementation requires the teacher to be digitally competent, extending beyond the mere usage of digital tools to the ability to integrate digital technologies into social communication, educational contexts, particularly pedagogical areas, and the creation of a technology-rich environment [25]. Studies indicate that digital competence for instructional and methodological processes remains poorly integrated, hindering the effective use of digital resources in learning [21]. Consequently, training teachers in

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digital competence can facilitate the effective use of digital resources to deliver appropriate language instruction [14]. This requires a broader repertoire of competencies that model and encourage engagement in a digital society [4]. In summary, the statement underscores the significance of digital competence for teachers in the effective integration of digital resources into learning environments. It emphasizes the need for a comprehensive approach that goes beyond mere tool usage, integrating digital skills into pedagogical practices. Training teachers in digital competence is seen as essential for fostering effective instructional processes and creating a technology-rich learning environment, with particular relevance to language instruction.

Numerous studies have been conducted at all levels to examine how teachers' digital competency influences their instruction. For instance, a study in Spain by [15] focused on digital competence in the training of pre-service teachers. The study, involving 200 student teachers completing the Perceptions Questionnaire on Digital Competence, found that future teachers have an average level of digital competence and face challenges particularly with content creation. However, it also showed significant improvement in the teaching dimensions of digital competence. These findings have important implications for curriculum design and teacher training in digital competence. From this study, it can be inferred that digital competence among teachers is crucial for harnessing the potential of education in the 21<sup>st</sup> Century. The study involved 200 student teachers who completed the Perceptions Questionnaire on Digital Competence. This questionnaire likely included item designed to measure various aspects of digital competence, such as technical skills, information management, communication, collaboration, and content creation. The study found that future teachers had an average level of digital competence. This suggests that while there is baseline proficiency, there is room for improvement and enhancement in digital skills among preservice teachers. A notable finding was that student teachers faced challenges, particularly in the area of content creation. This could include difficulties in developing digital content for instructional purposes, which is a crucial aspect of effective digital teaching. Despite challenges, the study showed significant improvement in the teaching dimensions of digital competence. This indicates that, through their training, pre-service teachers exhibited advancements in utilizing digital tools and strategies for instructional purposes. The study emphasizes that digital competence among teachers is crucial for harnessing the potential of education in the 21<sup>st</sup> century. This aligns with the broader recognition that digital skills are essential for educators to effectively navigate and leverage technology in the rapidly evolving landscape of education.

[17] investigated how literacy teachers in the United States viewed the integration of information communication technologies (ICTs) into literacy teaching. They conducted a national survey involving 1,441 literacy teachers to gather data on the availability and usage of ICTs, beliefs about their importance in literacy instruction, and perceived barriers to integration. Data analysis included descriptive statistics, exploratory factor analysis, and path analysis to examine the relationship between teachers' views on the importance of technology and their actual integration levels. The results indicated low levels of ICT integration into the curriculum, consistent perceptions of integration obstacles, and a tendency to define ICTs and integration in technological rather than curricular terms. The path analysis identified several factors associated with higher integration levels. These findings contribute to understanding the current status of ICT integration in literacy instruction and suggest factors to consider for increasing integration in line with broadening literacy definitions.

In a study conducted in Turkey, [24] analyzed the attitudes of future English teachers towards the use of technology in language instruction. The research sought to examine the impact of factors

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such as gender, grade, and academic average on these attitudes. A quantitative approach was adopted, with data collected through a questionnaire distributed to language department teachers at a state university. Additionally, 174 third and fourth-grade learners also participated. The findings showed that prospective teachers had a positive attitude towards using technology for language instruction. Interestingly, there was no significant correlation between participants' attitudes and their grade, gender, or academic average. The results also suggested that the teachers in training mainly used computers for simpler tasks, like presentations and email, while being cognizant of the advantages of computer-assisted language learning. The study concluded by suggesting the incorporation of a course on technological integration into teacher education programs to enhance the ability of student teachers to integrate digital resources in language teaching.

A separate study by [11] in Morocco aimed to understand the perceptions and attitudes of teachers and students in higher education towards the use of technology in language teaching and learning. The study discovered that all participants used internet-based applications for both personal and educational purposes. However, despite recognizing the advantages of using technology as a language learning resource, many faculty members didn't benefit significantly from these platforms and remained reluctant to integrate them into their educational practices. It was found that the usage of these digital resources by most teachers was limited to sharing web links and learning materials developed by others on the internet, with little to no creative input from the teachers themselves. The study underlines the overreliance on content created by others, rather than focusing on teachers' creative digital competencies, to facilitate specific areas of language learning, making language instruction more effective, smooth, and easy.

#### **Theoretical Framework**

Technological Pedagogical Content Knowledge (TPACK) is a theoretical framework that centres on the interaction among technology (T), pedagogy (P), and the content knowledge (CK) within an educational setting. [33] established the framework to outline the different types of knowledge an educator can combine when implementing educational technology. TPACK framework outlines what is being taught and how the teacher imparts the content to in order to integrate technology to communicate the content which supports pedagogy that will enhance learning experience. According to TPACK framework, the digital tools are best in instructing learners towards an understanding of the subject matter. The three types of knowledge are combined and recombined in various ways within the framework to an intersection where the teachers work within the complex space. Therefore, the technological knowledge helps the teacher be able to synthesize how to incorporate the technological knowledge, pedagogical knowledge and content knowledge in the teaching process.

The theory supports this study in the following ways: TPACK emphasizes the interplay between three key components: technology, pedagogy, and content. TPACK helps explore how early childhood education teachers in Upper Eastern Kenya combine their knowledge of digital tools, effective pedagogical practices, and language instruction content to create meaningful and engaging learning experiences of their children. TPACK also recognizes the importance of context in shaping effective teaching practices. It helps investigate how teachers adapt and tailor their use of digital tools based on the specific needs, abilities, and cultural backgrounds of their students. The theory encourages research to consider how pedagogical choices are influenced by the unique context of early childhood education in Upper Eastern Kenya.

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TPACK guides exploration of how teachers select and apply pedagogical strategies that leverage digital tools to enhance language instruction. TPACK examines how teachers design interactive and technology-rich activities that align with the curriculum and language learning goals, promoting active engagement and deeper understanding among learners. TPACK enables to probe into the challenges and opportunities teachers encounter when integrating technology into language instruction. The theory explores how teachers navigate obstacles such as limited access to technology or lack of digital literacy skills, and how they leverage available resources to create effective learning experiences for young learners. TPACK underscores the importance of ongoing professional development. The theory also investigates how early childhood education teachers in Upper Eastern Kenya acquire and develop their TPACK through workshops, training, collaboration with colleagues, and self-directed learning. Understanding the pathways of TPACK development can inform strategies for enhancing teacher competence. TPACK's focuses on the interaction between technology, pedagogy, and content aligns with the ultimate goal of improving student learning outcomes. By exploring how TPACK influences language instruction practices, the researcher can assess its impact on students' language skills, engagement, and overall educational. The study results may benefit policy makers by providing insights into the digital competence levels of early childhood education teachers. Policymakers can use this information to develop guidelines or training programs to enhance teachers' digital skills, ensuring that they are equipped to incorporate technology into their teaching methods effectively. The study will also help them understand how the pedagogical factors affecting language instruction can inform the development of policies that support effective teaching methods. Policymakers can also use the findings to promote evidence-based pedagogical approaches in early childhood.

## 2. METHODOLOGY

## **Research Design**

The study adopted a combination of both descriptive survey and correlation research design. The descriptive survey approach systematically gathered and analyzed data to outline the characteristics, behaviors, and attitudes of ECDE teachers in relation to digital competence and language instruction. This method provided a detailed overview of the teachers' digital skills, pedagogical factors, and instructional practices in Upper Eastern Kenya, identifying areas for improvement. Past researchers, like (34), had found this design effective for assessing population characteristics. Similarly, correlation research design was utilized to explore the relationship between ECDE teachers' digital competence and language instruction in a natural setting without manipulation. This approach offered insights into the connections between digital competence and language instructional.

## Sampling

The study population constituted of Language Teachers, Head teachers and ECDE County Directors in the Upper Eastern Region of Kenya. The language teachers were the primary respondents of the study since they are the ones executing their competence to instruct language. The head teachers were considered as key sources of information as regards to instruction of language by the ECDE teachers. The directors also considered as they are the ones who monitor to ensure full implementation of curriculum. The target population of the study was 4,021 respondents comprising of 2,009 ECDE teachers, 2,009 head teachers, and three (3) county directors. The study adopted the Yamane's simplified formula method to determine the sample

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size of teachers, head teachers, and ECDE directors to take part in the study. The study sample size provided the researcher with the rationale of the source of figures as well as ensured consistent and unbiased estimates of the sample from the diverse respondents. From the population a sample if 364 responded which comprised 181 head teachers, 181 teachers and three county directors as illustrated in the table 1.

County	Population	Sample			Total
		Head	ECDE	ECDE	
		Teachers	teachers	Directors.	
Embu	1239	56	56	1	113
T/Nithi	1155	52	52	1	105
Meru	1626	73	73	1	147
Total		181	181	3	364

#### **Table 1: Sampling Grid**

Researcher, 2024

Three counties from Kenya's upper Eastern region (Embu, Tharaka Nithi and Meru) were purposively selected. Within each county, schools were chosen using simple random sampling, while ECDE language teachers and head teachers were selected purposively. From each school, one ECDE teacher was chosen randomly, paired with the corresponding head teacher. This approach ensured each sample maintained a 1:1 ratio of ECDE language teacher to head teacher. A constant value of 0.0905 was calculated by dividing the target sample size of 364 by the population of 4,021. This constant was then used to proportionally allocate samples from each county: Embu had 113 respondents, Tharaka Nithi 105, and Meru County 147. Additionally, the county directors from each of the three counties were purposively included to contribute data for analysis.

## Instruments

Data was collected using two structured questionnaires and an interview schedule. The questionnaires were filled out by the language teachers and their corresponding head teachers from the sampled schools. The questionnaires were considered relevant for collecting data from the respondents because they were the ideal instrument for data collection from respondents who were diverse and large in number (35). The questionnaires consisted of six (6) sections in a Likert type to seek respondents' opinions related to the digital competence of ECDE teachers and their influence on language instruction.

The study conducted diagnostic tests to check for normality, collinearity, autocorrelation, and heteroscedasticity within the data. The Shapiro-Wilk Test indicated non-normal distribution, guiding the selection of regression type, while the Variance Inflation Factor (VIF) confirmed an absence of multicollinearity with values between 1.983 and 2.430. The Durbin-Watson test, yielding values between 2.325 and 2.481, confirmed no autocorrelation in the data, ensuring reliable regression estimates. Finally, the Koenker test results showed no heteroscedasticity across models, with p-values ranging from 0.097 to 0.389, confirming the data's suitability for regression analysis.

## **3. RESULTS**

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The objective sought to establish the extent to which the ECDE teachers' assessment of their level of digital competence.

A descriptive finding was conducted to achieve the objective. ECDE teachers and their respective head teachers were given a set of twenty-one (21) statements regarding the issue of digital competence as presented in the three sub-variables (Knowledge, Skills and Awareness). Table 2 presents a summary of data obtained on ECDE teachers' knowledge of digital resources.

Knowledge; I am able;	NE	LÉ	ME	GE	VGE	Total
Apply new digital techniques	1.4	4.1	36.1	31.3	27.1	100.0
To adopt new digital tools in learning	-	5.4	35.4	31.3	27.9	100.0
Use computer in instruction	2.7	7.5	31.3	26.5	32.0	100.0
Utilize smart phone in instruction	3.4	6.1	20.4	30.6	39.5	100.0
Use tablet in instruction	6.8	10.9	25.2	31.3	25.9	100.0
Incorporate educational software's in	0.7	8.2	23.6	28.6	38.8	100.0
instruction						
Use you tube in instruction	1.4	13.6	17.7	33.3	34.0	100.0
Evaluate correct use of digital	1.4	5.4	29.3	29.9	34.0	100.0
resources						
Solve problems using digital	12.2	15.6	33.3	17.7	21.1	100.0
resources						
Use snapchats in instruction	9.5	9.5	28.6	19.0	33.3	100.0

## Table 2: Knowledge of Digital Tools (ECDE Teachers)

ECDE Teacher (N=171)

A teacher's level of digital competence was assessed based on their knowledge, skill and awareness of use of digital tools or resources for use in language instruction. Data obtained showed that a majority of the sampled ECDE teachers (59.21%) possessed sufficient knowledge of digital tools for language instruction. More than half (58.4%) were able to apply new digital techniques, adopt new digital tools in learning (59.2%), use computer in instruction (58.5%) and utilize smart phone in instruction (70.1%). This was confirmed by their head teachers, a majority of who (67.27%) indicated that their ECDE teachers possess adequate knowledge of digital tools for language instruction. Findings therefore show that a majority of both the sampled ECDE teachers and their head teachers confirmed that the ECDE teachers have adequate digital knowledge to competently integrate digital tools in language instruction. [18] in a study on Digital Competence and different methodologies practiced in Swedish Teacher Education, with a specific emphasis on digital competence. The results highlighted a wide spectrum of digital competence levels, from basic to advance. Additionally, the study found a general lack of familiarity with using digital resources in relation to societal demands for digital competence in curriculums. Table 3 presents a summary of data obtained on ECDE teachers' skills of digital resources.

Skills; I am;	NÈ	LE	MÉ	GE	VGE	Total
Able to manipulate digital resource	12.9	4.1	21.8	18.4	42.9	100.0
Creatively use the digital resource	10.9	6.8	20.4	27.2	34.7	100.0

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Invent new ways of using digital	2.7	6.8	34.0	23.1	33.3	100.0
loois	5 4	27	26.5	21.2	24.0	100.0
Manage challenges experienced	5.4	2.7	26.5	31.3	34.0	100.0
while using digital tools						
Effectively integrate digital resource	12.9	4.8	25.9	23.8	32.7	100.0
to the content taught						

ECDE Teacher (N=171)

Data obtained on skills that teachers possess showed that more than half of the sampled teachers (61.3%) were able to manipulate digital resource, creatively use the digital resource (61.9%), invented new ways of using for digital tools (56.4%), able to manage challenges experienced while using digital tools (65.3%) and effectively integrate digital resource to the content taught (56.5%). Findings were corroborated by more than half of the head teachers (63.52%) who approved the fact that their ECDE teacher possess a high level of skill in utilizing digital resources for various educational purposes. [26] in their study revealed that a spectrum of digital competence levels, ranges from basic to advanced, underscores the diverse landscape of teachers' digital skills. The variation is a reflection of the evolving nature of technology integration in education, with some educators being more skilled at employing digital resources than others. Table 4 presents a summary of data obtained on ECDE teachers' awareness of digital resources.

#### Table 4: Awareness and Digital Competence

Awareness; I am	NE	LE	ME	GE	VGE	Total
Aware of importance of digital	-	2.7	21.1	42.2	34.0	100.0
tools						
Aware of the type of digital tool to	0.7	1.4	25.6	46.3	25.2	100.0
use in instruction						
Familiar with use of digital	1.4	3.4	26.5	32.0	36.7	100.0
resources in language instruction						
Knowledge on choosing best	0.7	14.3	27.9	27.9	29.3	100.0
digital tools						
Know where to get language	0.7	9.5	20.4	40.8	28.6	100.0
content from digital resources						
Confidence in using the digital	2.0	10.2	14.3	10.8	32.7	100.0
resource						

ECDE Teacher(N=171)

The data obtained to determine the extent of digital awareness in influencing digital competence. The following responses were made, more than three quarters of the sampled ECDE teachers (76.2%) acknowledged the importance of digital tools, were aware of the type of digital tools to use in instruction (71.5%), were familiar with use of digital resources in language instruction (68.7%), possessed knowledge on choosing best digital tools (57.2%), and knew where to get language content from a digital resource (69.4%). This finding was supported by more than two thirds of the head teachers (70.7%) who acknowledged that ECDE teachers were aware of the digital resources available and also knew how the resources could be utilized in the instruction processes. In a study by [2], the focus was to gauge digital competence and ICT literacy among

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in-service English Language teachers in Saudi Arabia. The study found varying degrees of digital competence and ICT awareness among teachers with majority were found to have a basic grasp of ICT for communication, information processing, content creation, and problem-solving. Moreover, a significant proportion of the respondents were also conversant with social networking and online sharing.

Qualitative data obtained indicated that many teachers were digitally competent, confidently using digital resources in instruction with many teachers demonstrating the skills and knowledge needed to use digital tools effectively. However, the use of these resources was limited by a lack of creativity and an over-reliance on programmed methods, restricting teachers' ability to develop innovative ways of using the tools. There is emphasis that with better resource availability and additional training, teachers could become more efficient and confident in using digital resources. [7] indicated that skillful utilization implies a purposeful and adept application of digital technologies. Data obtained relative to competence based on awareness.

The study assessed the inferential relationship between Digital Competence and Language Instruction in ECDE centers in upper Eastern region Kenya. The objective sought to determine the relationship between digital competence and language instruction among ECDE teachers in Upper Eastern, Kenya. The hypothesis, H<sub>0</sub>1 formulated for this purpose sought to establish whether there existed a significant relationship between digital competence and language instruction among ECDE teachers in upper Eastern region, Kenya. The study thus tested the relationship between ECDE teachers perceived digital competence and language instruction as illustrated in Table 5.

Table 5: Relationship between Digital Competence and Language Instruction (Model Summary)

Step	-2 Log likelihood	Cox & Snell R <sup>2</sup>	Nagelkerke R <sup>2</sup>	$\square^2$	df	Sig.
1	167.130	0.127	0.277	1.769	1	0.275

Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Independent variable in the model was digital competence. The model was significant  $\Box^2(1) = 15.695$ , p<0.001 and the Hosmer and Lemeshow Test confirmed model fit,  $\Box^2(1) = 1.769$ , p=0.275. Cox & Snell R square predicted a variance of 12.7% while Nagelkerke R square predicted 27.7% variation in language instruction explained by the model. The model with independent variable explained 87.6% of ECDE teachers' digital competence, an improvement from the initial 66.7% initially predicted. Table 6 presents information on variables in the equation.

# Table 6: Relationship between Digital Competence and Language Instruction (Regression Coefficient)

	В	SE	$\operatorname{Wald}_2$	df	Sig.	Exp(B)
Digital Competence	1.970	0.514	14.701	1	0.000	7.170
Constant	-1.765	0.623	8.036	1	0.005	0.171

Variable(s) entered on step 1: Digital Competence

Regression analysis illustrated that ECDE teachers' digital competence positively and significantly predicted language instruction, Wald  $\Box^2(1) = 14.701$ , p<0.001, Exp(B) = 7.170. Findings mean that ECDE teachers' digital competence is positively and significantly related with language

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instruction. Therefore, the hypothesis which stated that there is no statistically significant relationship between ECDE teachers' digital competence and language instruction in ECDE centers in upper Eastern region, Kenya was rejected.

Inferential analysis based on logistic regression illustrated that ECDE teachers' digital competence therefore, positively and significantly predicted language instruction, Wald  $\Box^2$  (1) =14.701, p<0.001, Exp(B) = 7.170. Findings mean that ECDE teachers' digital competence is positively and significantly related with language instruction. It implies that teachers' digital competence positively and significantly contributes to language instruction. [13] established that digital competence is indispensable for effective teaching. The transformative influence of technology on contemporary educational settings is evident in the recognition that teachers must possess digital competence to navigate the complexities of the modern classroom.

#### 4. DISCUSSIONS

The objective sought to establish the extent to which the ECDE teachers' assessment of their level of digital competence. A teacher's level of digital competence was assessed based on their knowledge, skill and awareness of use of digital tools or resources for use in language instruction. Data obtained showed that a majority of the sampled ECDE teachers (59.21%) possessed sufficient knowledge of digital tools for language instruction. More than half (58.4%) were able to apply new digital techniques, adopt new digital tools in learning (59.2%), use computer in instruction (58.5%) and utilize smart phone in instruction (70.1%). This was confirmed by their head teachers, a majority of who (67.27%) indicated that their ECDE teachers possess adequate knowledge of digital tools for language instruction. Findings therefore show that a majority of both the sampled ECDE teachers and their head teachers confirmed that the ECDE teachers have adequate digital knowledge to competently integrate digital tools in language instruction. in a study on Digital Competence and different methodologies practiced in Swedish Teacher Education, with a specific emphasis on digital competence by (36). The results highlighted a wide spectrum of digital competence levels, from basic to advance. Additionally, the study found a general lack of familiarity with using digital resources in relation to societal demands for digital competence in curriculums.

Data obtained on skills that teachers possess showed that more than half of the sampled teachers (61.3%) were able to manipulate digital resource, creatively use the digital resource (61.9%), invented new ways of using for digital tools (56.4%), able to manage challenges experienced while using digital tools (65.3%) and effectively integrate digital resource to the content taught (56.5%). Findings were corroborated by more than half of the head teachers (63.52%) who approved the fact that their ECDE teacher possess a high level of skill in utilizing digital resources for various educational purposes. Another study by (26) revealed that a spectrum of digital competence levels, ranges from basic to advanced, underscores the diverse landscape of teachers' digital skills. The variation is a reflection of the evolving nature of technology integration in education, with some educators being more skilled at employing digital resources than others.

The data obtained to determine the extent of digital awareness in influencing digital competence. The following responses were made, more than three quarters of the sampled ECDE teachers (76.2%) acknowledged the importance of digital tools, were aware of the type of digital tools to use in instruction (71.5%), were familiar with use of digital resources in language instruction (68.7%), possessed knowledge on choosing best digital tools (57.2%), and knew where to get language content from a digital resource (69.4%). This finding was supported by more than two

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thirds of the head teachers (70.7%) who acknowledged that ECDE teachers were aware of the digital resources available and also knew how the resources could be utilized in the instruction processes. In a study by (2), the focus was to gauge digital competence and ICT literacy among in-service English Language teachers in Saudi Arabia. The study found varying degrees of digital competence and ICT awareness among teachers with majority were found to have a basic grasp of ICT for communication, information processing, content creation, and problem-solving. Moreover, a significant proportion of the respondents were also conversant with social networking and online sharing.

Inferential analysis based on logistic regression illustrated that ECDE teachers' digital competence positively and significantly predicted language instruction,  $Wald \Box^2(1) = 14.701$ , p<0.001, Exp(B) = 7.170. Findings mean that ECDE teachers' digital competence is positively and significantly related with language instruction. The findings implies that teachers' digital competence positively and significantly contributes to language instruction. In a previous study by (13) it was established that digital competence is indispensable for effective teaching. The transformative influence of technology on contemporary educational settings is evident in the recognition that teachers must possess digital competence to navigate the complexities of the modern classroom.

## **5. CONCLUSION**

The objective sought to determine the relationship between digital competence and language instruction among ECDE teachers in Upper Eastern, Kenya. Data obtained illustrated a positive and significant relationship between digital competence and language instruction. It can therefore be concluded that teachers' digital competence positively and significantly contributes to language instruction.

## 6. RECOMMENDATION

Provide targeted training and professional development programs for ECDE teachers to enhance their proficiency in utilizing digital resources for instruction. Such trainings should focus on areas where digital utilization is lower, such as problem-solving and utilizing platforms like Snapchat for instructional purposes. These programs can help bridge the gaps in awareness and perceived usefulness of digital tools.

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