



# INTEGRATION OF EDUCATIONAL TECHNOLOGY AND ACADEMIC PERFORMANCE OF GRADE TWO LEARNERS IN ENGLISH

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## ABSTRACT

*This study was conducted to determine the Integration of Educational Technology and Academic Performance of Grade Two learners in English in the elementary schools in Matanao 2 District Davao del Sur. The respondents in this study are determined using the sloven's formula, study instructed as are as follows: Savoy Elementary School (50), Glot Towak Elementary School (30), Dongan Pekong Elementary School (25) and Asbang Elementary School (30). 130 respondents in Matanao 2 district the total number of respondents from the population of 190. Sloven formula on further in computing the number of populations. The respondents of this study are grade two learners and teachers teaching grade two English in SY 2024 - 2025. The teacher's respondents will answer the checklist based on the indicators in the researcher made questionnaire describing the integration of educational technology constructed by the researcher. This study makes use of the simple random sampling procedure for the teachers-respondents considering the huge number of learners in the research locale. This study will utilize the researcher developed questionnaire which items and indicators are focused on the integration of educational technology and 20 item English test for the Grade two learners. The teachers-respondents will give their responses on the items in the checklist that will be tallied for analysis and interpretation by the statistician while the learners will take the test. The researcher-made questionnaire will undergo pilot testing in a school that is not part of the research local to measure its validity and reliability.*

**KEYWORDS:** *Random Sampling, Checklist, Pilot Testing, Validity, Reliability*

## INTRODUCTION

Educational Technology (ET) refers to a learning system that utilizes various methods, processes, and products to achieve specific educational objectives within an organization for effective execution. Additionally, it involves the use of computers as a key component in implementing the system, incorporating networks, software, and the internet into the e-learning experience.

Technology in the field of education is the trend that is already adopted as an aid to classroom delivery. It is rapidly emerging as a predominant paradigm in the delivery of education in the society and has been observed that the use of e-learning is the best way to transfer knowledge from the teacher to learners. There are evidences that the e-learning has now become an essential component in the delivery of many higher education courses and has been instrumental in supporting and facilitating teaching and learning. Research shows that there are issues and challenges that threaten the adoption and sustainability of e-learning especially in rural communities (ITEA, 2020).

In certain research conducted in California, one of the negative findings pertaining to the use of educational technology is the enduring difficulty about technology and a lot of people thinking about the technology first and then education later. There are some recommendations ranging from access, adequacy, and equity in educational technology to the increase of educators and learners' access to high-speed internet services and appropriate instructional software with increase technical assistance and maintenance support in using technology (De Vries et.al., 2021).

Educational technology draws from a range of theoretical insights across multiple fields, including communication, education, psychology, sociology, artificial intelligence, and computer science. It includes various areas such as learning theory, computer-based training, online education, and mobile learning, which utilizes mobile technologies (Blandow and Dyrenfurth, 2024).

Educational technology encompasses all credible and reliable applications of educational sciences, including tools and various methods derived from scientific inquiry. In a specific context, it can refer to theoretical, algorithmic, or heuristic methods and does not have to be linked to tangible technology. The integration of technology into education is referred to as educational technology, and its goal is to create a positive environment that supports diverse learning experiences while enabling learners to become proficient in utilizing technology alongside their usual studies. Technology can facilitate the development of these essential skills. Both educators and learners can maintain communication even beyond the confines of the school setting. (Williams et al., 2023).



Educational technology encompasses a broad range of tools and practices, along with the theoretical foundations that aid in teaching and learning. It is not limited to cutting-edge technology; rather, it includes any resources that improve classroom learning, whether in blended, in-person, or online formats (Teach Thought, 2020).

An educational technologist is an individual who specializes in the domain of educational technology. These professionals focus on analyzing, designing, developing, implementing, and assessing processes and tools that improve learning experiences. Although the term educational technologist is mainly utilized in the United States, the equivalent term learning technologist is commonly used in the UK and Canada (Fractus Learning, 2023).

Contemporary electronic educational technology is a significant component of society today. Educational technology includes e-learning, instructional technology, information and communication technology (ICT) in education, edtech, learning technology, multimedia learning, technology-enhanced learning (TEL), computer-based instruction (CBI), computer-managed instruction, computer-based training (CBT), computer-assisted instruction (CAI), internet-based training (IBT), flexible learning, web-based training (WBT), online education, digital educational collaboration, distributed learning, computer-mediated communication, cyber-learning, multi-modal instruction, virtual education, personal learning environments, networked learning, virtual learning environments (VLE), mobile learning (m-learning), and digital education (Herold, 2020).

Each of these various designations has proponents who highlight potential differentiating qualities. However, many terms and concepts in educational technology have been described in confusing ways. For example, Singh and Thurman offer around 45 definitions of online learning. Furthermore, Moore saw these terms as emphasizing specific characteristics such as digitization techniques, components, or distribution systems rather than being fundamentally distinct in concept or principle. For example, m-learning emphasizes mobility, allowing for changes in learning scheduling, location, accessibility, and context; nonetheless, its goal and conceptual notions are those of educational technology (Legislatures, National Conference of States, 2020).

In the Philippines, educational technology improves teacher efficiency and learner engagement by providing additional opportunities to study. Technology in education is gaining traction in the education sector, thanks in large part to government efforts. The government and institutions that provide education services in the Philippines and other nations highly encourage this e-learning idea. The 2011 Executive Order 47 series emphasized the need of continuing e-learning innovation in the country, including the establishment of an e-learning environment by actively supporting it at all levels of education (Padolina, 2022).

According to the same author, technology is progressively being integrated into education in the Philippines, with the purpose of assisting students in adapting to the contemporary world and improving their learning experience. Here are some instances of how technology is being used in Philippine education.

In the Division of Davao Del Sur, particular in Savoy Elementary School the use of technology in education is at minimal level due to scarcity of technological devices. Moreover, teachers are not motivated to utilize educational technology due to lack of orientation on how technology facilitates learning. The researcher being a technology savvy would like to impart the pivotal role of technology in education and eventually share with colleagues the results of this endeavor.

## LITERATURE REVIEW

The medium of distribution is an important consideration when utilizing technology to teach. During the epidemic, many of us were accustomed to teaching completely online (live and/or asynchronous), and we may need to remind ourselves that this is merely one end of the range. It is feasible to employ classroom technology that were specifically created for that purpose (such as electronic whiteboards), as well as ordinary gadgets or applications. Alternatively, we may use easily accessible online information or websites to bridge the gap between courses and allow learners to expand their language learning chances on their own. This has been known as blended learning for some years now, and it may be a good concept (Information Age).

It is critical to understand that technology and applications will develop over time. It is thus beneficial to participate in activities that keep you informed about the advancement of technology-supported language education. Fortunately, there are a range of providers and organizations available to help you, ranging from official ones that may lead to various forms of certificates to less formal ones that allow you to share your own knowledge with teachers all over the world. Read this section (Wakefield 2022).

The world of e-Learning has been rapidly evolving, and as we venture into 2025, its transformation shows no signs of slowing down. For e-Learning professionals, learners, and educators, staying ahead of the curve is crucial to leveraging new technologies and methodologies that can enhance the learning experience. This article explores the top trends in e-Learning for 2025, offering insights and practical tips to help you stay informed and prepared for what lies ahead (Trucano, 2024).

Virtual Reality (VR) and Augmented Reality (AR) are revolutionizing e-Learning by providing immersive learning experiences that engage learners in novel and interesting ways. VR can transfer learners to various surroundings, allowing them to experience complicated concepts and experiences firsthand. AR, on the other hand, superimposes



digital information on the physical environment, creating interactive and contextually relevant material (environment Bank, 2023).

The integration of ICT (information, communication, and technology) will assist teachers meet the global necessity to replace conventional teaching techniques with technology-based teaching and learning tools and facilities. In Malaysia, ICT is regarded as one of the most important aspects in altering the country for future growth. The Ministry of Education's most recent Education Blueprint (2013-2025) emphasizes the relevance of technology-based teaching and learning in schools' national curriculum. This study seeks to examine teachers' perspectives of the usefulness of ICT integration to facilitate the teaching and learning process in the classroom (Geeks for Geeks, 2020).

In this 21st century, the term “technology” is an important issue in many fields including education. This is because technology has become the knowledge transfer highway in most countries. Technology integration nowadays has gone through innovations and transformed our societies that has totally changed the way people think, work and live. As part of this, schools and other educational institutions which are supposed to prepare learners to live in “a knowledge society” need to consider ICT integration in their curriculum (Governing et.al., 2022).

Integration of Information, Communication, and Technology (ICT) in education refers to the use of computer-based communication that incorporates into daily classroom instructional process. In conjunction with preparing learners for the current digital era, teachers are seen as the key players in using ICT in their daily classrooms. This is due to the capability of ICT in providing dynamic and proactive teaching-learning environment. While, the aim of ICT integration is to improve and increase the quality, accessibility and cost-efficiency of the delivery of instruction to learners, it also refers to benefits from networking the learning communities to face the challenges of current globalization (Zardetto, 2021).

The adoption of ICT is a continual process that completely supports teaching, learning, and information resources. ICT integration in education typically refers to a technology-based teaching and learning process that is closely related to the use of educational technologies in schools. Learners are comfortable with technology, and they learn better in a technology-based environment, thus ICT integration in schools, particularly in the classroom, is critical. This is because the use of technology in education has a significant impact on pedagogical aspects, with the use of ICT leading to successful learning with the aid and support of ICT elements and components (Baxter, 2024).

It is true that technology-based tools and equipment may help learners study practically any topic, including mathematics, physics, languages, arts and humanities, and other key areas. Furthermore, ICT gives assistance and complementary support for both teachers and learners when it comes to successful learning using computers as learning aids (Biancarosa and Griffiths, 2022).

Computers and technology are not intended to substitute competent instructors, but rather to serve as an add-on supplement for improved teaching and learning. The need for ICT integration in education is critical since technology allows teaching and learning to take place not just in the classroom, but also when teachers and learners are physically separated. However, ICT integration is a continuous learning process that creates a proactive teaching-learning environment (Tucker, 2022).

ICT may be utilized in a variety of ways that help teachers and learners learn about their respective topic areas. Technology-based teaching and learning provides a variety of stimulating methods, such as educational videos, stimulation, data storage, database usage, mind-mapping, guided discovery, brainstorming, music, and the World Wide Web (www), in order to achieve learning process more fulfilling and meaningful (Finger and Trinidad, 2022).

On the other hand, learners will benefit from ICT integration where they are not bounded to the limited curriculum and resources, instead hands-on activities in a technology-based course are designed to help them to stimulate their understanding about the subject. It also helps teachers to design their lesson plans in an effective, creative and interesting approach that would result in learners' active learning. Previous researches proved that use of ICT in teaching will enhance the learning process and maximizes the learners' abilities in active learning. Hermans et al (2008) have identified three main stages for ICT to be highly valued and regarded by the teachers; integration, enhancement and complementary. Integration approach is about implementing right use of ICT in particular subject area that involved complex concepts and skills to improve learner's achievement and attainment. Besides, the review of curriculum is also needed so that only related ICT resources and appropriate software will be installed for the main aims and objectives of curriculum to be achieve (Cherner et.al., 2024).

Enhancement approach is about using ICT to give great emphasis on the topic introduced. For instance, Microsoft PowerPoint can be used to present the topic in a very innovative and creative way that will lead into discussion and exchanging ideas and thoughts. Finally, complementary approach is when the ICT is used to aid and support the learner's learning. This approach allows learners to be more organized and efficient in which they can take obtain the notes from computer, submit their works by email from home as long as they meet the deadline and looking for information from various sources provided online to fulfil the task given to them (Colao, 2022).



Technology-based teaching and learning can make many changes in school that requires for proper planning and policy making. Researchers and policymakers must both have the same insight about the future plan. Dudeney (2010) noted that national ICT policies can serve several crucial functions. They provide a rationale, a set of goals, and a vision of how education systems run if ICT is integrated into teaching and learning process, and they are beneficial to learners, teachers, parents and the general population of a given country. Ministry of Education Malaysia has formulated three main policies for ICT in education. The first policy insists on all learners are given opportunity to use ICT. This is aimed to reduce the digital gap among the schools. The second policy focuses on the role and function played by ICT in education. Besides that, another policy stressed on the use of ICT for accessing information, communication and as productivity tool (Chan, 2002). However, infrastructure and facility of ICT is then needed to supply to the schools throughout the nation. A key factor in use of ICT is sufficient computer labs and ICT equipment. This is to ensure that subject teachers are easily access to ICT tools whenever needed (Delgado et.al., 2021).

One of the most pressing issues affecting schools, particularly those in rural regions, is a lack of proper ICT equipment and internet connection. For example, study results suggest that certain schools in Kenya have computers, however this may be restricted to one computer in the office. Even in schools that have computers, there is a high learner-computer ratio. Furthermore, the survey found that ICT-equipped schools are backed by parental initiative or community power (Chapelle, 2021).

In most schools, technological challenges have become a major issue and source of irritation for learners and instructors, causing disruptions in the teaching and learning process. Teachers are unable to utilize the computer momentarily if there is no technical assistance or maintenance available (Jamieson-Proctor et al., 2013). As a result, instructors will be deterred from using computers for fear of equipment failure because they will not receive any support with the issue. According to Türel and Johnson's (2012) study, technological issues provide a significant hurdle for teachers. These issues include poor connectivity, malware attacks, and printer malfunctions. However, there are certain outliers (Dominic, 2023).

Schools in nations such as the Netherlands, the United Kingdom, and Malta have recognized the necessity of technical assistance to help instructors use ICT in class. Furthermore, instructors' willingness and abilities in using ICT play an important role in its utilization in education. Teachers must have appropriate ICT abilities to deploy technology and be confident enough to utilize it in the classroom. Furthermore, instructors must understand the pedagogical role of ICT in order to use it effectively in the instructional process (Dinaro, 2021).

According to Winzenried, Dalgarno, and Tinkler (2010), instructors who have completed an ICT course are more successful in teaching with technological tools than those who have not received such training. A school in Ireland observed that instructors who lacked confidence avoided utilizing ICT. A similar example occurred in Canada, where several teachers acknowledged to being hesitant ICT users because they were concerned about being ashamed that their learners understood more about technology than they did (Ely and Plomp, 2023).

### **Statement of the Problem**

This study aimed to determine the level of integration of educational technology and the level of academic performance in English of the grade two learners. Specifically, it answers the following sub-problems:

1. What is the level of integration of educational technology in terms of:
  - 1.1 Teaching-Learning,
  - 1.2 Homework and
  - 1.3 Assessment?
2. What is the level of academic performance in English of the grade two learners:
3. Is there a significant relationship between the integration of educational technology and the academic performance in English of the grade two learners?

### **METHODOLOGY**

#### **Research Design**

This study investigated the research topic using a descriptive correctional survey research methodology. It is descriptive since the facts are given quantitatively on the "Integration of Educational Technology and Academic Performance of Grade Two Learners in English." According to TeachThought (2020), this research approach consists solely of task descriptions that offer the circumstances surrounding the nature of a group of people or a class of occurrences that involves an analysis, classification, and measurement procedure. It includes a variety of facts on the current or current situation (Herold, Benjamin 2020).

#### **Research Respondents**

This study should be conducted in the elementary schools in Matanao 2 District. The respondents in this study are determined using the sloven's formula. The respondents of these study instructed as are as follows: Savoy Elementary School (50), Glot Towak Elementary School (30), Dongan Pekong Elementary School (25) and Asbang Elementary School (30). 130 respondents in Matanao 2 district the total number of respondents from the population of 190. Sloven formula on further in computing the number of populations. The respondents of this study are grade two learners and teachers teaching grade two English in SY 2024 - 2025. The teacher's respondents will answer the checklist based on the indicators in the researcher made questionnaire describing the integration of educational



technology constructed by the researcher. This study makes use of the simple random sampling procedure for the teachers-respondents considering the huge number of learners in the research locale.

### Research Instrument

This study will utilize the researcher developed questionnaire which items and indicators are focused on the integration of educational technology and 20 item English test for the Grade two learners. The teachers-respondents will give their responses on the items in the checklist that will be tallied for analysis and interpretation by the statistician while the learners will take the test. The researcher-made questionnaire will undergo pilot testing in a school that is not part of the research local to measure its validity and reliability.

### Data Analysis

The following statistical tools will be used in the analysis and interpretation the responses in this study. Mean is the average or most common value in a collection of numbers. In this study it will be used to describe the level of integration of educational technology and the level of academic performance in English of the grade two students.

Pearson r is a statistic that is used to measure the relationship between two different variables. In this study it will be used to determine the significant relationship between the level of integration of educational technology and the academic performance in English of the grade two students.

## RESULTS AND DISCUSSION

### Conclusion

Based on the collective findings on this study, the following conclusions are drawn:

The level of Integration of Educational Technology in Terms of Teaching-Learning is low, the level of Integration of Educational Technology in Terms of Homework is low, the level of Integration of Educational Technology in Terms of Assessment is Moderate, the level of level of Academic Performance in English of the Grade 2 learners is approaching proficiency, there is a significant relationship between integration of educational technology and academic performance in English of the grade 2 learners.

These findings are aligned with the Cognitive Load Theory. This theory, developed by John Sweller, suggests that learning is most effective when cognitive overload is minimized. Educational technology, such as interactive learning platforms, multimedia presentations, and adaptive learning systems, can help Grade 2 learners in English by presenting information in manageable chunks. This enables learners to process complex language rules, grammar, and comprehension strategies without feeling overwhelmed. Proper integration of technology ensures that learners focus on meaningful learning rather than struggling with excessive cognitive demands.

Another theory that supports the findings of this study is the Constructivist Learning Theory Rooted in the works of Jean Piaget and Lev Vygotsky. Constructivism emphasizes that learners actively construct knowledge through experiences and interactions. When educational technology is used effectively such as through discussion forums, gamified learning apps, or collaborative writing tools it promotes engagement and critical thinking. Grade 2 English learners can benefit from this approach by applying their skills in authentic contexts, like composing digital stories, interacting with peers in online discussions.

### Recommendations

In the light of the findings drawn out by the researcher in this study, the following recommendations are offered: It is recommended that DepEd should prioritize the strategic integration of educational technology in classrooms. Implementing adaptive learning platforms, interactive multimedia resources, and AI-driven tutoring systems can personalize instruction and support diverse learning needs. By incorporating these digital tools, educators can foster engagement, improve comprehension, and reinforce language acquisition through immersive activities. Additionally, training teachers to effectively utilize technology will ensure its meaningful application, helping students grasp complex English concepts while developing essential communication skills.

Furthermore, DepEd should establish policies that promote equitable access to educational technology, ensuring that all learners benefit regardless of their socioeconomic background. Providing schools with adequate digital infrastructure, such as stable internet connectivity and updated software, will create an inclusive learning environment. Research-based assessments should also be conducted to measure the effectiveness of technology-driven instruction and identify areas for improvement. By integrating technology thoughtfully and continuously evaluating its impact, DepEd can cultivate a dynamic and supportive English learning experience for Grade 2 learners, equipping them with skills necessary for future academic success.

To school leaders, in order to improve the academic performance of Grade 2 English learners, school leaders should spearhead programmed that use educational technology into classroom instruction. This involves investing in interactive learning technologies like digital narrative applications, gamified vocabulary drills, and AI-powered language assistants to increase learner engagement and understanding. Providing professional development for teachers to successfully incorporate technology into lesson plans will ensure that digital tools are used to supplement, not replace, meaningful education. School administrators may empower instructors to meet varied learning requirements and increase learners' English mastery by creating a technology-rich learning environment.



Furthermore, school administrators must prioritize equitable access to educational technology by ensuring that all learners, regardless of background, have the required tools and internet connection to benefit from digital learning. Collaboration with stakeholders such as government agencies, corporate organizations, and local communities can assist in obtaining financing for technical resources and infrastructural upgrades. Implementing frequent assessments to evaluate the success of technology-based education will also aid in the refinement of techniques for improved academic achievements. School leaders may establish an inclusive, innovative, and successful learning environment for Grade 2 English learners by advocating for the appropriate and strategic use of educational technology.

To improve the academic achievement of Grade 2 English learners, teachers should strategically include educational technology into their lesson. Interactive platforms, digital narrative tools, and language-learning applications can improve course engagement and accessibility. Incorporating multimedia resources like movies, podcasts, and gamified exercises can assist students enhance reading comprehension, grammatical skills, and vocabulary in a dynamic manner. Furthermore, using AI-powered tutoring systems and adaptive learning programmed may personalize training, allowing students to advance at their own speed while receiving targeted assistance based on their own needs.

To maximize the benefits of technology in English education, instructors should be properly trained and supported on a continual basis. Collaborating with peers to share best practices, attending digital pedagogy courses, and investigating creative teaching approaches will all contribute to effective technology integration. Maintaining a balance between traditional teaching tactics and digital resources is vital for promoting critical thinking and meaningful learning experiences. Teachers may create an interesting, inclusive, and effective learning environment that enables Grade 2 students to flourish in English by carefully utilizing educational technology.

Future studies should investigate the long-term influence of instructional technology on Grade 2 English competence, including how different digital tools contribute to language growth, engagement, and retention. Investigating issues like as accessibility, teacher readiness, and student adaption to technology-enhanced learning will yield useful insights into effective integration strategies. Furthermore, comparing research of conventional and technology-assisted training can help discover the most effective methods for increasing English abilities. Scholars may use in-depth research to make evidence-based suggestions to improve educational policies and procedures, ensuring that technology is a useful tool for improving academic achievement

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