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Level of ICT Awareness of Millennial Parents

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Abstract: In today's generation where the use of technology is no longer an option, being aware of technology and its capabilities specially in teaching younger generation is important. In this research, the millennial parents were asked about the level of their awareness in relation to Information and Communication Technology (ICT) and how does their level of awareness affect their parenting style. They were chosen because of the characteristics of being tech-savvy and socially conscious. This research has used a mixed-method approach and had a total of 42 participants. The results show that the parents are aware of ICT and this is highlighted with their knowledge on how to use gadgets detect threats in using the gadgets. However, with the rapid change and improvements the participants admitted that it is hard to cope up with terms specially jargons that were used in using ICT. Lastly, the participants are also aware that their children are much aware than they are and they often ask help from their children for help.

Keywords: ICT, millennial, millennial parents, Generation Y, DigCompEdu, parenting style

1. INTRODUCTION

Information and Communication Technology is defined by Awati, R., & Pratt, M. K. (2023) as the infrastructure and components that enables modern computing. It also said that one of the goals of these Information and communication technologies, tools, systems is to improve the experience of the users in the process of creating, processing, and sharing of data with each other.

On the other hand, millennial as defined by Zelazko and Alicja (2025) as a term used to describe a person born between 1981 and 1996. In the article of BambooHR (N.d.) it stated that millennials are also known as the "Generation Y" whose age could range from 28 to 43 as of 2024. Furthermore, it gave some key characteristics of millennials; tech-savvy, socially conscious, delay life milestones, and values experiences. Thompson, J. (2023) have stated that today's definition of tech-savvy is not only limited to the capability to manipulate Microsoft Office but to know how to make technology work for the user and not the other way around. This may include incorporating task organizers, calendar, email, management tools, even the usage of productivity software. Millennials being tech-savvy seems to be elegant, does this make them better parents and to what extent?

Parenting as defined by Kretchmar-Hendricks, M. (2025) as "the process of raising children and providing them with protection and care" which is a tedious task to carry until the children turn into adulthood. However, in the article provided by Ann & Rober H. Lurie Children's Hospital of Chicago (2024) it states that "millennial parents are doing things differently". Furthermore, it provided data that states "85% of millennial parents believe social media creates unrealistic parenting expectations", additionally "30% of millennial moms compare their parenting success to others on social media". This suggests that even though some millennial parents know that not all information taken in the internet is true, some still use this platform to check their parenting style to the extent of comparing it to others.

Additionally, Pangamban, S. (2023) states that, "ease of access to information has empowered millennials to make more informed decisions." As the decision-maker for the welfare of their children, parents often seek better ways compared to what they have experienced. This extends even to filtering the contents, practicing safe screentime and the digital safety of their children. Furthermore, Mitchell, N. (2021) states that "Millennial parents see online safety as more of a shared responsibility." This could be related to Sustainable Developmental Goal number 17: "Partnerships for the Goals" which makes all of those involved in the development of a child responsible not solely to the parents.

In relation to this, another SDG that could be achieved is SDG number 3: Good health and well-being. The UC Davis Health Children's Hospital (N.d.) cited the research of Harvard Scientists that stated, "Positive parenting has long-term benefits: better relationships, mental health, and well-being during adulthood." These researches challenge millennial parents not only about parenting style but also to be aware of ICT and challenges affecting their level of awareness to fully maximize utilization of ICT.

Although extensive research has examined digital competence among educators and students, there remains a noticeable lack of studies that focus on parents, particularly millennial parents, as critical partners in fostering digital learning at home. Most existing research using the DigCompEdu framework (Redecker, 2017; Ghomi & Redecker, 2022) centers on teachers' use of technology in education, while the application of this framework to parents' digital competence is still underexplored. Recent studies, such as that of Tondeur et al. (2024), highlight the importance of digital capital and parental engagement in children's digital learning but do not comprehensively assess parents' competence across the different dimensions of ICT use.

To address these gaps, this study seeks to quantitatively determine the level of ICT literacy awareness among millennial parents and identify the factors that affect it, using the DigCompEdu framework as a conceptual lens. By examining parents' digital competence across areas such as digital safety, communication, problem-solving, and digital resource management, the study aims to provide insights that can inform capacity-building programs and parental involvement initiatives in technology-supported learning.

Specifically, this study aims to answer the following research questions:

1. What is the level of ICT literacy awareness of millennial parents?

2. What are the factors that affect the level of ICT literacy awareness of millennial parents?

2. LITERATURE REVIEW

The rapid advancement of information and communication technology (ICT) has reshaped how individuals learn, communicate, and participate in society. In education, ICT integration has become an essential element of 21st-century learning, requiring not only digital competence among teachers and students but also among parents who increasingly guide and support children's learning at home. The COVID-19 pandemic accelerated the shift toward digital and remote learning, revealing disparities in ICT literacy of families and communities (Ghomi & Redecker, 2022).

Millennial parents hold a unique position in this digital world. They are often assumed to be "digital natives" as they grew up with the internet and mobile technologies. However, recent findings suggest that being comfortable with technology does not automatically equate to being digitally capable (Tondeur et al., 2024). Effective digital competence involves not only technical skills but also ethical awareness, critical thinking, and problem-solving in using technology.

This chapter reviews literature related to a) ICT literacy and digital competence and b) parental engagement in digital learning. It examines the theoretical and empirical foundations that support the investigation of ICT literacy awareness among millennial parents. The discussion highlights current research trends, identifies limitations in existing literature, and establishes the conceptual basis for the present study.

2.1. ICT Literacy and Digital Competence

Definition and Evolution of ICT Literacy. ICT literacy is generally defined as the ability to access, manage, integrate, evaluate, and create information using digital technologies (UNESCO, 2018). Over time, the concept has evolved beyond basic computer skills to encompass a wider set of competencies including digital communication, collaboration, content creation, and responsible online behavior (OECD, 2021). In the 21st century, ICT literacy represents not just operational knowledge but a form of digital citizenship—an awareness of how to use technology effectively, ethically, and safely in both professional and personal contexts.

As societies continue to digitize, ICT literacy has become a prerequisite for participation in educational, economic, and civic life. The Organisation for Economic Co-operation and Development (OECD, 2021) emphasized that individuals with strong ICT skills are more adaptable to technological change and are better equipped to engage in lifelong learning. Likewise, UNESCO (2018) highlighted that digital competence is essential for equity in education, enabling learners and their families to participate fully in a digital society.

Importance of ICT Literacy in Education. ICT literacy has become essential in modern education, not just for teaching effectiveness but also for encouraging student engagement, learning innovation, and adaptability. Recent empirical studies emphasize that ICT literacy goes beyond mere access to technology. It involves cognitive, pedagogical, and ethical dimensions. ICT literacy serves as a bridge to educational equity, allowing learners and parents to fully participate in digital learning environments (Yang & Felix, 2024).

For example, research by Ma and Austria (2023) using the TPACK model in higher vocational colleges found that teachers' effective teaching ability is significantly influenced by how well they integrate technology, pedagogy, and content knowledge. This suggests that ICT literacy is not only about technical skills but also about understanding how technology can be pedagogically embedded into content delivery.

Similarly, Liu and Austria (2024), in their study of information technology application in college basketball teaching, identified cognition, willingness, and application as core components determining whether ICT is effectively used. They found that among teachers, levels of willingness and actual use of ICT differ depending on age and training, highlighting that ICT literacy requires ongoing support, motivation, and favorable infrastructure (equipment, training).

Another study by Qing and Perey (2024) emphasized that integrating ICT tools in specialized fields such as fashion design significantly enhances creativity, communication, and student engagement. This underscores that ICT literacy is not only essential for academic performance but also for fostering innovation which can be an equally vital skill that parents need to nurture in their children.

Recent work in Namibia on exploring the integration of AI-based educational technologies shows again the growing need of digital awareness in new areas. Teachers' knowledge of AI tools, institutional support, and access to training and infrastructure were found to be key facilitators or barriers. As AI tools become increasingly integrated into education, ICT literacy needs to be supplemented with emerging technology literacy.

In the Philippines, studies among parents further highlight the importance of parental ICT literacy in educational contexts. Ladesma & Ocay (2025) found a positive relationship between parental digital competence and children's academic commitment, indicating that when parents are more digitally competent, student engagement tends to be higher.

Taken together, these studies emphasize several important implications for this current study on ICT literacy awareness among millennial parents:

1. ICT literacy involves several areas—not just technical skills but pedagogical, cognitive, and ethical components.
2. Willingness or attitude (awareness) is as crucial as access and capability; individuals who have access may still not use ICT effectively without motivation or confidence.
3. New technologies (e.g., AI, mobile learning tools) create new needs for ICT knowledge that were less prominent in earlier forms of educational technology.

These implications highlight the importance of exploring the level of ICT literacy awareness among millennial parents. Parents are critical mediators of their children's digital learning environment, and understanding their awareness, attitudes, and abilities will help inform strategies for supporting home-based digital learning and responsible technology use.

2.2. Parental ICT Literacy and Digital Parenting

Parental ICT literacy refers to the ability of parents to effectively use information and communication technologies (ICT) to support, guide, and monitor their children's digital learning and behavior. It involves not only technical skills,

such as operating devices and navigating online platforms, but also cognitive, social, and ethical competencies that enable parents to create a balanced and safe digital environment at home. According to Liu et al. (2023), ICT-literate parents demonstrate critical awareness in evaluating online content, understanding digital safety, and fostering their children's responsible media use. Parental ICT literacy therefore contributes to the development of a child's own digital competence and academic motivation, serving as a bridge between home and school learning.

In the Philippine context, studies have shown that parental ICT awareness is becoming increasingly vital due to the integration of online platforms in both education and communication. Maaghop and Que (2024) found that Filipino parents often serve as facilitators and mentors in their children's online learning, helping them manage digital tasks and maintain academic discipline. Similarly, Ladesma and Ocay (2025) emphasized that parental digital competence significantly predicts students' academic engagement and learning motivation. These findings highlight the need to assess millennial parents' ICT literacy levels, as they play a critical role in shaping children's digital experiences in blended and home-based learning environments.

Digital parenting refers to the practices and strategies parents use to guide their children's interaction with technology, emphasizing safety, balance, and educational value. It involves monitoring online activities, setting screen-time limits, teaching digital ethics, and fostering open communication about online behavior. As Livingstone and Blum-Ross (2020) describe, effective digital parenting requires parents to balance protection and empowerment—allowing children to explore the digital world while ensuring responsible and informed use of technology.

ICT literacy and digital parenting are interdependent. Parents who possess higher levels of digital literacy are better equipped to perform key digital parenting roles. They can effectively evaluate online risks, integrate technology into family learning, and promote responsible use of digital tools. Conversely, low ICT literacy can hinder parents from guiding children in navigating complex digital environments, leading to potential issues such as misinformation, excessive screen time, or unsafe online behavior.

Aligning from the DigCompEdu Framework (Redecker, 2017; Ghomi & Redecker, 2022), parental ICT literacy can be viewed through domains such as Digital Resources (evaluating and sharing online content), Empowering Learners (promoting autonomy and inclusion), and Facilitating Learners' Digital Competence (teaching responsible digital use). Applying these domains to parents enables researchers to assess how millennial parents' digital skills translate into practical digital parenting behaviors.

Philippine studies (e.g., Abella & Dela Rosa, 2023) have also called attention to the widening gap between technical access and digital understanding among families. While many Filipino parents have access to devices and the internet, disparities remain in their ability to critically guide their children's online engagement. Strengthening ICT literacy, therefore, not only enhances digital parenting effectiveness but also promotes safer, more productive, and values-driven digital learning experiences for children.

2.3. Theoretical Framework

DigCompEdu Framework. The European Framework for the Digital Competence of Educators (DigCompEdu) is a comprehensive, research-based framework developed by the European Commission to define what it means for educators to be digitally competent (Redecker, 2017; Ghomi & Redecker, 2022). It provides a common understanding of the skills, knowledge, and attitudes educators need to effectively use digital technologies in teaching and professional practice. The DigCompEdu framework was originally intended for teachers, but its relevance extends to all stakeholders involved in education—including parents—who contribute to making digital learning happen at home (Tondeur et al., 2024). As the line between school and home learning continues to blur, especially after the pandemic, parents' digital competence becomes a critical factor in sustaining effective and responsible use of technology among children.

Parental Digital Literacy Framework. The Parental Digital Literacy Framework, as suggested by Romero (2014), focuses on the critical capabilities and competencies parents must possess in order to successfully lead their children through the modern digital environment. It comprises four major dimensions: privacy, content, and technology management; communication and socio-emotional skills; creative and problem-solving skills; and lifelong learning. These networked spaces emphasize that parents' digital literacy extends beyond simple technical competence. It entails promoting safe, responsible, and productive technology use in the home. Parents are not just digital gatekeepers but role models and co-learners who facilitate their children's digital development. This model offers an integrated foundation for exploring how millennial parents' ICT sensitivity impacts their ability to foster responsible digital learners in the home.

3. DESIGN AND METHODOLOGY

This chapter presents the research design and methodology, population and locale of the study, data gathering tool, data gathering procedure, treatment of data, and ethical considerations.

The study utilized a mixed-methods approach, specifically a convergent parallel design, in answering the research problems. The quantitative aspect was employed to determine the level of ICT awareness among millennial parents based on various indicators such as familiarity with digital devices, software applications, troubleshooting, digital citizenship, and online safety. Meanwhile, the qualitative aspect was used to explore the factors affecting ICT awareness of parents, particularly their challenges, reliance on children, and strategies to enhance ICT skills. Both the quantitative and qualitative data were collected simultaneously through an online questionnaire created using Google Forms. The integration of both aspects provided a more comprehensive perspective on the ICT awareness of millennial parents.

The respondents of the study were millennial parents, defined as those born between 1981 and 1996, from Cordillera Career Development College who have children currently enrolled in the institution. A total of 42 millennial parents served as the respondents of the study. The locale was chosen because it provided a sufficient number of parents who fall within the millennial age bracket and who actively participate in their children's education. This made the school an ideal setting to examine ICT awareness in the context of digital parenting.

The main data-gathering instrument was a researcher-made and adapted questionnaire administered through Google

Forms. The instrument was divided into three sections, namely demographic profile, level of ICT awareness, and open-ended qualitative questions. The first section covered information on age, access to the internet, primary device used, and participation in ICT-related training. The second section focused on the level of ICT awareness and included Likert-scale questions related to the use of computers and mobile devices, Microsoft applications, software updates, troubleshooting, digital citizenship, cyber ethics, parental controls, and awareness of AI-related tools. The third section consisted of open-ended questions that sought to probe parents' challenges, coping strategies, and reflections on their child's ICT skills compared to their own. The questionnaire was adapted from the DigCompEdu framework (European Commission, JRC, 2017) and from the study of Rahayu and Haningsih (2021).

The data collection procedure for this study was carefully structured to ensure accuracy and ethical compliance. A formal request was submitted to the school administration to secure approval to conduct the study among millennial parents. Upon approval, the Google Forms link was distributed through official communication channels such as email, school announcements, and parent group chats. Responses were collected voluntarily, with the system automatically storing the answers in the researchers' database. The quantitative questions provided numerical data on parents' level of ICT awareness, while the open-ended responses offered deeper insights into their struggles, strategies, and perceptions of ICT use in their role as parents. Confidentiality and voluntary participation were observed throughout the process.

The data gathered in this study were treated using descriptive statistical analysis to determine the level of ICT literacy awareness of millennial parents and the factors that influence it. Specifically, the mean was computed for each indicator under ICT literacy awareness, and the results were interpreted using a four-point Likert scale. The statistical limits and their corresponding qualitative descriptions are presented in Table 1.

Table 1: Scale of Interpretation for the Level of ICT Awareness

Scale	**Statistical Limit**	**Qualitative Rating**	**Interpretation**
4	3.50 - 4.00	Very Aware	Parents demonstrate a strong understanding and application of ICT in their personal and parenting roles. They are confident in using ICT tools and recognize their impact on parenting and child development.
3	2.50 - 3.49	Aware	Parents show adequate knowledge and skills in ICT. They can generally apply ICT in parenting but may still need support or training in some areas.
2	1.50 - 2.49	Somewhat aware	Parents demonstrate limited ICT knowledge and skills. They may be familiar with basic tools but lack confidence in applying ICT effectively for parenting purposes.
1	1.00 -1.49	Not Aware at All	Parents lack ICT awareness and skills. They struggle to use ICT in their personal and parenting roles, showing little to no confidence in integrating technology.

Ethical considerations were strictly observed in the conduct of the study. Participation was entirely voluntary, and respondents were informed of the purpose of the research prior to answering the questionnaire. Informed consent was secured digitally, and no personally identifiable information was collected from the participants. To ensure confidentiality, all data were securely stored and accessible only to the researchers. The results were reported objectively and without bias, avoiding any misrepresentation that might negatively impact the participants.

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4. RESULTS AND DISCUSSIONS

4.1 Level of ICT Awareness of Millennial Parents

Assessing the level of ICT awareness among millennial parents can be seen in a similar way—just like educators, parents need a certain level of digital competence to effectively guide, assist, and oversee their children's use of technology for both learning and daily activities.

Table 2: Level of ICT Awareness of Millennial Parents Based on Mean Scores

Statements	Mean	Level of Awareness
How aware are you with the use of a computer or a mobile device	3.48	Aware
Are you aware of the possible threats that your child may encounter online?	3.40	Aware
Are you aware of different applications that your child uses?	3.20	Aware
How aware are you of your child's digital activities?	3.15	Aware
Are you aware with Chatgpt and other AI software?	2.98	Aware
How aware are you of free online webinars or trainings?	2.93	Aware
How aware are you with free online webinars or trainings?	2.88	Aware
Are you aware with parent-control settings within applications?	2.88	Aware
How aware are you with Microsoft Applications?	2.86	Aware
How aware are you with unreliable resources?	2.74	Aware
How aware are you with the updates of software and applications?	2.69	Aware
Are you aware with digital citizenship and cyber ethics?	2.60	Aware
How aware are you with troubleshooting devices?	2.36	Aware
General Weighted Mean	**2.93**	**Aware**

The findings reveal the level of ICT awareness among millennial parents across various aspects of digital competence. The overall general weighted mean of 2.93 indicates that millennial parents are generally "Aware" of ICT-related concepts, tools, and practices. This implies that the parents show adequate knowledge and skills in ICT. They can generally apply ICT in parenting but may still need support or training in some areas.

Interestingly, research by Wang and Gunaban (2023) demonstrated that digital competence—specifically through mobile-assisted language learning (MALL)—significantly enhances students' engagement and learning outcomes. Their findings suggest that when users are equipped with sufficient ICT skills and motivation, mobile technologies become powerful learning tools. In the context of the present study, this implies that parents' ICT awareness can play a vital role in supporting or limiting their children's participation in similar technology-enhanced learning environments.

Parents reported their strongest awareness in using computers and mobile devices (M = 3.48) and recognizing online threats (M = 3.40). This indicates that they are comfortable with basic ICT operations and are conscious of potential online risks to their children. Similar results were found in a study of Indonesian parents, where digital literacy competence was strongest in everyday device use and online safety (Khasanah & Utami, 2022). Such patterns reflect that device familiarity and safety are foundational digital competencies for parents in supervising children.

Parents showed moderate awareness in monitoring children's applications and digital activities (M = 3.20–3.15), as well as in familiarity with AI tools like ChatGPT (M = 2.98) and online trainings (M = 2.93). This finding resonates with Beardsley et al. (2023), who observed that awareness of emerging AI technologies remains uneven even among digitally active groups. The moderate awareness of free webinars or trainings also suggests that while parents recognize opportunities for self-improvement, they may not fully utilize them—consistent with evidence that digital capital (i.e., access, skills, and confidence) influences parental engagement (Tondeur et al., 2024).

The lowest scores were recorded in device troubleshooting (M = 2.36), digital citizenship and cyber ethics (M = 2.60), and updating software/applications (M = 2.69). These findings highlight gaps in more advanced digital literacies, technical maintenance, and value-driven competencies. Research on digital parenting self-efficacy similarly shows that while parents excel in communication and online safety, their competence in reflective and technical tasks is weaker (Çetin & Usta, 2022). This underscores the need to strengthen parents' awareness not just of "how" to use technology but also of responsible and ethical usage.

When examined through the lens of the DigCompEdu Framework (Redecker, 2017), millennial parents appear to occupy the intermediate levels of digital competence. Their strengths in device use and online safety map onto the areas of Digital Resources and Digital Safety, while their weaknesses in troubleshooting, ethics, and emerging technologies relate to higher-order areas such as Problem-Solving and Facilitating Digital Competence.

This pattern echoes the findings of Tondeur et al. (2024), who emphasize that digital capital — a combination of access, skills, and confidence — significantly shapes how parents engage in their children's digital learning. Parents with stronger digital capital tend to align more closely with the higher levels of DigCompEdu, demonstrating advanced problem-solving and reflective practices. Conversely, limited digital capital constrains parents to more functional uses of technology, much like the "Aware" level identified in this study. Thus, strengthening parents' digital capital is essential for enabling them to progress from functional awareness toward advanced digital competence.

4.2. Factors affecting Literacy Awareness

A. Difficulties encountered in enhancing ICT Awareness

According to the participants, one of the difficulties that has an effect on enhancing the ICT awareness of parents is the technical language and rapid technological change. Common responses include "rapid technological change," and "struggle with understanding new terms." This indicates that while parents are exposed to digital tools, they often face challenges in keeping up with the pace of innovation and technical jargon.This means that one of the key factors to be aware in a certain context is through understanding the language to have a full grasp of it. This could also corroborate to the study of Wang and Gunaban (2023), where it states that understanding language with the help of mobile-assistance greatly enhances their competence.

B. Seeking assistance from children

When the participants were asked if they were asking help from their children in solving the challenges, most of their responses were "Yes". This infers a good connection in their relationship with their children. This finding resonates with Livingstone and Blum-Ross (2020), who describe modern parent–child relationships as "mutually instructive" in digital contexts. Millennial parents, though generally tech-exposed, tend to rely on their children for navigating newer applications or troubleshooting devices. This behavior illustrates intergenerational learning and underscores the collaborative nature of digital parenting, where both generations contribute to shared digital competence.

C. Parents as Digital Co-Learners

When participants were asked if they teach their child how to use new applications they've discovered, their responses were a mixture of "Yes" or "Sometimes", while others responded "No". This variability suggests differing levels of confidence and initiative among parents in assuming the role of digital mentors.

Parents who do share new applications demonstrate an awareness of their responsibility in guiding children's educational use of technology. Those who do not may lack confidence or perceive their children as already more knowledgeable. This supports Tondeur et al. (2024), who found that adult digital competence is influenced by self-efficacy—the belief in one's ability to effectively use technology. Hence, enhancing parental self-confidence may improve their engagement in co-learning activities with their children.

D. Perceived ICT Awareness of Children

Nearly all parents agreed that their children are more aware of ICT than they are, with reasons such as "they use technology at school," "they are digital natives," and "they live on their phones." This perception reflects the generational gap between parents who adapted to technology and children who were born into it.

This observation echoes the idea of "digital natives vs. digital immigrants" (Prensky, 2021), suggesting that younger generations' familiarity with technology stems from early and constant exposure. In the Philippine context, Maaghop and Que (2024) similarly reported that adolescents often act as guides for their parents in using digital media, reinforcing the idea of bidirectional learning within families. However, while children may be more skilled in operational tasks, parents remain crucial in shaping their ethical and safe digital practices, as emphasized by Ladesma and Ocay (2025).

The responses reveal that the factors affecting millennial parents' ICT literacy awareness include:

1. Technological barriers – rapid innovation and unfamiliar terminology.
2. Infrastructure limitations – unreliable internet access.
3. Generational learning dynamics – reliance on children for ICT guidance.
4. Self-efficacy and confidence – varying willingness to explore new tools.
5. Perceived competence gap – belief that children are more tech-savvy.

These findings demonstrate that while millennial parents are exposed to ICT in daily life, awareness does not always translate to competence. Addressing these factors through digital literacy programs—such as parent training workshops or community-based ICT education—can empower parents to become active co-learners and digital role models. Integrating frameworks like DigCompEdu can help structure such initiatives to improve both technical and pedagogical aspects of parental digital competence.

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