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## Research Article

### Information and Communications Technology (ICT) Literacy and Self-Efficacy of Junior High School Students: Basis for an ICT Enhancement Program

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#### ABSTRACT

The proliferation of science and technology in society allows learners to be more informed about the changes and developments in society and education. Moreover, literacy evolved from the conventional way of reading and writing to applying and accessing information from a digital environment. Hence, this paper aims to look into a way to extrapolate the correlation of Information and Communications Technology (ICT) literacy and self-efficacy of Junior High School students in one private school in the district of Obando, Bulacan, Philippines. Using a descriptive-correlation research design, the researcher believes a significant correlation between and among variables. The chosen respondents for the study consisted of one hundred and thirty-five (135). The findings of the study revealed that Junior High School students had moderate literacy towards ICT. Also, this study found out that the Junior High School students described their ICT self-efficacy as moderately agreeing. Furthermore, results of the correlational analysis using Pearson  $r$  revealed that the ICT literacy of Junior High School students was significantly correlated to their ICT self-efficacy. It is recommended that the schools include this area in their annual improvement plan under the students' services affairs. Schools should pay attention to this since majority of the private schools now at the height of integrating ICT in the school system and further uplift the ICT literacy and self-efficacy of Junior High School students toward ICT integration through an enhancement program.

**Keywords:** *Information and Communications Technology (ICT), ICT Literacy, ICT Self-Efficacy, Junior High School Students*

#### Introduction

The presence of technology in society is undoubtedly expanding as science and technology progress. The rapid advancement of technology allows individuals to become more

informed about what is truly going on in their society and become more conscious of the potential consequences for their life (Hero, 2020). As a result, people's literacy was improved from the capacity to read and write to accessing

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and applying information from a digital environment. This paves the path for the emergence of digital literacy. People's minds aid society's advancement in any subject, allowing it better to answer their demands through the use of technology. The capacity of humans to access, process, comprehend, and create information or material in a digital context is referred to as digital literacy. Digital literacy refers to a set of abilities needed to succeed in an increasingly digital environment. In addition, people who are more scientifically and technologically literate make better decisions and choices in their life (Ng, 2013). It also aids an individual's advancement in any field by allowing them better to meet their demands via the use of technology.

On the verge of the Industrial Revolution 4.0, where technology infusion is one of the significant reformation and innovation, it appears that education is one of the areas that have been impacted by ICT infusion. Researchers worldwide have concluded that 21st-century education has reacted to the needs of Education 4.0 through management system advancements, and it now has a significant impact on the teaching and learning process. Educators are increasingly expected to use digital technologies as instructional aids while instructing pupils. Thus, it is critical to educate the brains of our country's future leaders, who are the learners in school, on how to be more digitally literate. With this, numerous educational institutions employ ICT; Jan (2018) stipulated that since they believe it provides many benefits to students and empowers teachers and learners to boost learning and obtain 21st-century skills. It is widely assumed that ICT provides students with a more collaborative and engaging teaching and learning environment. Tang & Chaw (2016) extrapolated that ICT literacy is essential for students to learn effectively in a blended learning environment. When the level of students' ICT literacy is high, it can make it easier for them to participate in the learning process, giving learners a more positive feeling about the educational experience. Hence, students' learning performance and self-efficacy may be increased.

Unfortunately, recent studies have indicated that not all learners are digitally literate,

even though most learners are actively engaged with modern digital resources and have confidence in utilizing them. According to Fazli & Norazilah (2016), there is a lack of digital literacy in online learning. Anthonysamy (2020) discovered that students lacked literacy in a digital learning environment. It may be explained by the significant challenges students face in gaining digital literacy, including power outages, inadequate internet bandwidth, ICT facilities, and a lack of digital literacy programs and standards (Ukwoma, Iwundu, & Iwundu, 2016). Similarly, Lorenzo (2016) articulated that most public schools in the Philippines lack adequate ICT infrastructure, and most teachers are not ICT literate, resulting in low student and school performance. The study of Hamutoglu et al. (2020) revealed that the students from Turkey scored lower than other countries in terms of cognitive skills needed for digital literacy. This may lead to the recommendation of program development for digital literacy for students. Even if they have advanced in ICT and are actively engaged in it, they still face problems and are concerned about its utilization and application.

Presently, a multitude of Information and Communication Technologies affected the Philippines. Information and Communications Technology (ICT) in the country represents a watershed moment in the educational system, and it provides a wide range of opportunities for both teachers and students. Individuals may gain multiple benefits from ICT, including information transfer, data collection, and research, but it is still a pipe dream for many. People plan, develop, implement, and exchange ideas and information has evolved as computers and laptops, the internet, social media, and smartphone devices have become more prominent. And to adapt to these developments, Filipinos will need to learn a whole new set of ICT-related skills to become successful citizens in an increasingly digital world.

In times of crisis, such as when the country was hit hard by the Corona Virus 2019 (COVID-19), ICT usage became a viable alternative for keeping the school year going. As a result, most institutions adopt an online distance learning modality to continue educating Filipino students in the thick of the pandemic. ICT literacy

and ICT self-efficacy are essential to understand and to measure since their learning modality is online distance education. Their literacy and self-efficacy should be examined for the school to determine if they experienced issues and concerns about it, and how the school uplifts the ICT literacy and self-efficacy of the learners in a digital learning environment (Hero, 2019). Hence, the major concern of this study was to describe and to determine the Information and Communications Technology (ICT) literacy of Junior High School students and its association to their ICT self-efficacy from one private school in one district of Bulacan, Philippines, for the School Year 2020-2021. This study would try to propose an enhancement program through a webinar series, as the study's outcome, for the learners, and for the school administration to enhance the ICT literacy and self-efficacy in an online distance learning modality.

### **Literature Review**

#### *Information and Communications Technology (ICT) Literacy of Students*

Learning with Information and Communication Technologies (ICT) has evolved with time. It has come to generalize the concept that today's youth are surrounded and immersed in ICT. Smartphones, laptops, tablets, and gaming consoles are examples of technology (Prensky, 2010). As a result, the current generations are highly immersed in technology in every aspect of their life. Also, literacy on ICT use is highly observed in the current generations. Thus, academicians consider ICT literacy one of the literacy should teachers and the school consider and be molded and enhanced in the learning process.

In a nutshell, Siddiq & Scherer (2019) defined ICT literacy as an individual's desire, attitude, and capabilities to utilize and navigate digital technology and communication tools appropriately to access, manage, incorporate, and evaluate and use information; construct new knowledge, and connect with others to engage effectively in society. Similarly, the definition is associated with how Baterna, Mina, & Rogayan (2020) discussed ICT literacy, whereas is the capacity to access, analyze, comprehend, and generate information or media material in a

digital context. The techniques required in being digitally literate include accessing, consuming, producing, and transmitting digital material while also applying a critical assessment process. And since the proliferation of technology in society is highly observed and is now integrated into the learning process, developing and uplifting the students' ICT literacy becomes necessary to every educator in this 21<sup>st</sup>-century education.

The development of students' literacy levels in a digital environment is critical for enhancing the efficacy and efficiency of the learning process and students' adaption to a rapidly changing market environment. Findings from Shopova' study (2014) enunciated that strengthening students' digital literacy and abilities in utilizing ICTs is a prerequisite for effective performance and higher learning outcomes. The acquisition of needed digital literacy skills is a requirement for extending access to information and communication technology to guarantee that young people are more competitive in the labor market. The nature and definition of digital competence were explored since skills and abilities in the digital environment are needed to develop confident and critical use of ICT to participate in the knowledge society entirely (Ferrari, 2013; Siddiq & Scherer, 2019).

#### *Information and Communications Technology (ICT) Self-Efficacy of Students*

Knowledge learning and accomplishment require an understanding of self-efficacy, and the idea encompasses students' consciousness and their aspirations for future achievement. In line with this, the proliferation of Information and Communications technology brought significant changes and improvements in the education system and the self-esteem and efficacy of ICT in learning. Self-efficacy in the use of information and communication technology (ICT) is one of the most significant motivational factors linked to ICT acceptability, use, and literacy among students (Rohatgi, Scherer, & Hatlevik, 2016). It is a key driver that aids students in dealing with technological change; promotes lifelong learning processes and may become as significant as competencies and abilities in the

future (Senkbeil & Ihme, 2017; Warschauer & Xu, 2018).

ICT integration towards learning contributed a significant positive effect to students' ICT self-efficacy and manifested proficiency in using these ICT's in the learning process (Papastergiou, Gerodimos, & Antoniou, 2011). Students who are more confident and comfortable in their ability to cope with new technologies are better equipped to address future challenges, are more prepared to utilize ICT for learning in school, and are more ready to improve their ICT abilities throughout their lives (Hatlevik et al., 2018; Senkbeil & Ihme, 2017). Thus, integrating new ICT and enhancing students' self-efficacy in the digital home learning environment should be reiterated since it supports the students in facing the new normal education (Bonanati, & Buhl, 2021).

### **Purpose of the Study**

The primary concern of this research was to determine the Information and Communications Technology literacy of Junior High School students in one private school in one district of Bulacan and its connection to their ICT self-efficacy. Since ICT is now infused into teaching and learning by most private schools in the Philippines to continue the education of the learners amid pandemic, this research extrapolated the literacy of students in a technology-based education, as well as their self-efficacy of utilizing it as their primary tool for their studies in the new normal education. Therefore, the study's findings will serve as a profound perspective to other researchers, and as a basis for an enhancement program advancement that will further uplift the ICT literacy of the learners and unleash their full potentials as 21<sup>st</sup>-century learners. Moreover, the study's findings will contribute as a body of literature to other researchers that will utilize such parameters of the study. The study's findings may be used as a basis for further program development.

### **Research Objectives**

The study sought to:

1. Determine the Junior High School students Information and Communications Technology (ICT) literacy in terms of the following domains:

- 1.1 access and evaluation of information;
- 1.2 utilization and management of information;
- 1.3 media analysis;
- 1.4 creation of media products;
- 1.5 effective application of technology; and,
- 1.6 interaction through technologies.
2. Determine the ICT self-efficacy of Junior High School students in terms of the following sub-constructs:
  - 2.1 privacy and security;
  - 2.2 communications; and,
  - 2.3 differentiation and learning.
3. Determine the correlation between the ICT literacy of Junior High School students to their ICT self-efficacy .
4. Propose an enhancement development plan to further unleash and uplift the students' literacy and self-efficacy towards ICT integration.

### **Null Hypothesis**

The given null hypothesis will be tested at a 0.05 level of significance:

*Junior High School students' ICT literacy does not correlate to their ICT self-efficacy.*

### **Methodology**

#### **Research Design**

This study essentially used a descriptive correlation design that determined the relationship between Junior High School students' ICT literacy and their ICT self-efficacy. A correlational analysis is a design that evaluates if there is a relationship or correlation between and among variables and the extent and degree of the relationship. This study utilized a survey-instrument standardized questionnaire through Google Form as the primary data collection tool. In addition, the study's variables were analyzed and interpreted using a quantitative research approach.

#### **Respondents of the Study**

The study respondents included 135 private schools' Junior High School students who are currently enrolled for the School Year 2020 - 2021 and using an online distance learning modality as their platform for learning. The researcher utilized a universal sampling procedure as the study's sampling technique since the entire population was active in an online

learning platform. The Google form was sent to the students through their group chats to gather the necessary data needed in the study. An informed consent and the respondents' assent were secured first prior to their participation in this study.

### ***Instrument of the Study***

To collect the necessary data for the analysis, the researcher adopted and utilized a standardized questionnaire as the primary data collection tool. The survey tool for this study was divided into two sections: Information and Communication Technology (ICT) literacy and ICT self-efficacy.

The first part of the survey questionnaire is Information and Communications Technology (ICT) literacy. The researcher adopted the survey questionnaire, Digital Literacy Survey Questionnaire (DLSQ), from the study of Baterna, Mina, & Rogayan (2020), which included the following domains: Access and Evaluation of Information, Utilization and Management of Information, Media Analysis, Creation of Media Products, Effective Application of Technology, and Interaction through Technologies. The survey scale is a 30-item questionnaire that measures students' ICT literacy. The survey questionnaire was rated on a five-point Likert Scale ranging from 1 (not so literate) to 5 (highly literate). Its overall reliability is equal to evidence given the overall Cronbach's alpha value of 0.904

For the second part of the survey tool, the researcher adopted the ICT Self-Efficacy Scale of Musharraf et al. (2018) to determine the ICT self-efficacy of Junior High School students. The scale is an 18-item questionnaire that measures students' level of ICT self-efficacy. The survey questionnaire was rated on a five-point Likert Scale ranging from 1 (not so true) to 5 (highly true). Its overall reliability is equal to evidence given the overall Cronbach's alpha value of 0.88.

The Digital Literacy Survey Questionnaire (DLSQ), from the study of Baterna, Mina, & Rogayan (2020) and the ICT Self-Efficacy Scale of Musharraf et al. (2018), are highly reliable, as evidenced by 0.904 and 0.88. Hence, these questionnaires are highly reliable since Cronbach's alpha values are above .70.

### ***Data Analysis***

The researcher utilized descriptive and inferential statistics to tabulate and interpret the survey questionnaire results. The researcher used Statistical Packages for Social Sciences (SPSS) v. 25 as the study's statistical tool to analyze and interpret the data gathered. Junior High School students' ICT literacy, as the study's independent variable, and ICT self-efficacy, as the study's dependent variables, were quantified using descriptive statistics such as weighted mean procedures. On the other hand, to determine the significant correlation between the students' ICT literacy and their ICT self-efficacy, the researchers utilized Pearson Product Moment Correlation (Pearson  $r$ ).

### ***Ethical Consideration***

To establish and safeguard ethics in pursuing this study, the researcher firmly observed the following actions: the students' names were not declared in any part of the study; and, the students as the respondents of the study were not emotionally or physically harmed. The study respondents were not forced to participate, and thus, they have the right to refuse their participation in the study. The researcher cited and observed proper referencing of literature to promote copyright laws. All respondents in the study signed informed consent prior to their participation. Observance of all ethical principles was done during the conduct of the study. The researcher declared no conflict of interest in conducting this study.

### ***Results and Discussion***

ICT-based innovations have genuinely become a part of the paradigm change in education, particularly at the onset of this global pandemic. The paucity of literature expressed that most of the learners in the 21<sup>st</sup>-century are literate on the use of ICT in their studies and have an acceptable self-efficacy in ICT. Hence, this section would catechize and discuss the ICT literacy and self-efficacy of Junior High School students and corroborate the findings with other researches outputs worldwide to come up with a well-written enhancement program for the learners.

*Table 1. Information and Communications Technology (ICT) Literacy of Junior High School Students*

<b>Information and Communications Technology (ICT) Literacy of Junior High School Students</b>	<b>Average</b>	<b>Interpretation</b>	<b>Rank</b>
1. Access and Evaluation of Information	3.61	High	1 <sup>st</sup>
2. Interaction through Technologies	3.44	Moderate	2 <sup>nd</sup>
3. Effective Application of Technology	3.38	Moderate	3 <sup>rd</sup>
4. Media Analysis	3.26	Moderate	4 <sup>th</sup>
5. Creation of Media Products	3.25	Moderate	5 <sup>th</sup>
6. Utilization and Management of Information	3.06	Moderate	6 <sup>th</sup>
<b>General Average</b>	<b>3.33</b>	<b>Moderate</b>	

Table 1 presents the Information and Communications Technology (ICT) literacy of Junior High School students. It shows that Junior High School students exhibit moderate literacy towards ICT, as shown by the mean values of 3.33. Analysis from the six domains of ICT literacy shows that access and evaluation of the information are high, as can be gleaned from the mean value of 3.61. In contrast, Junior High School students display moderate interaction through technologies, effective application of technology, media analysis, creation of media products, and utilization and management of information, as can be gleaned from the mean values of 3.44, 3.38, 3.26, 3.25, and 3.06, respectively.

It can be deduced from the summary of digital literacy in Table 1 that access and evaluation of information in the digital environment recorded the highest weighted mean of 3.61, interpreted as high. The finding expresses that Junior High School students can access information in a digital environment effectively and efficiently. They know where the information needed can be generated and can be used for their studies. Similarly, findings reveal that students are literate in evaluating critically and scientifically the generated information from a digital environment. These components are the essential skills Junior High School students should possess since there are some fake

information and grey bodies of knowledge are continuously arise. Their awareness of different websites may also help them to determine whether the information is credible and reliable to be used. Marttunen, Salminen, & Utriainen (2021) emphasized that promoting students' skills in evaluating and analyzing the credibility and reliability of online information and analyzing its quality is vital in helping students determine what is helpful or not. This contradicts what the Stanford History Education Group (2016) found out about students' poor skills and literacy in accessing and evaluating information delivered through different websites and social media.

Specific developments and improvements in digital literacy were observed in the students. Thus, poor skills in accessing and evaluating information were not a problem for the teachers, especially when students were more exposed to the use of technologies in their studies. Therefore, it is now the responsibility of the school to enrich and uplift this domain of digital literacy for the students to become more critical and scientific in using and generating information from any websites or online sources. The role of the school in this matter is essential since the top mission is to give quality learning and promote the capacity of the young man to a future leader (Kahne & Bowyer, 2017).

*Table 2. Information and Communications Technology (ICT) Self-Efficacy of Junior High School Students*

<b>Information and Communications Technology (ICT) Self-Efficacy of Junior High School Students</b>	<b>Average</b>	<b>Interpretation</b>	<b>Rank</b>
1. Privacy and Security	3.61	Agree	1 <sup>st</sup>
2. Communication	3.48	Moderately Agree	2 <sup>nd</sup>

<b>Information and Communications Technology (ICT) Self-Efficacy of Junior High School Students</b>	<b>Average</b>	<b>Interpretation</b>	<b>Rank</b>
3. Differentiation and Learning	3.25	Moderately Agree	3 <sup>rd</sup>
<b>General Average</b>	<b>3.45</b>	<b>Moderately Agree</b>	

Table 2 illuminates the Junior High School students' Information and Communications Technology (ICT) self-efficacy. As can be observed from the table above, it shows that Junior High School students describe their ICT self-efficacy as moderately agree as shown by the general mean value of 3.45. As to the sub-constructs of ICT self-efficacy, students rated agree to the privacy and security with the weighted mean value of 3.61, while communication and differentiation and learning recorded mean values of 3.48 and 3.25 respectively, interpreted as moderately agree.

The summary on the table above shows that privacy and security appears to have the highest mean values among the three sub-constructs of 3.61, interpreted as agree. This implies that learners are aware of the privacy and security in using ICT resources and social networking sites. It is evident by the practices that they know how to change passwords from their social networking sites and email accounts. Also, they know how to filter, to hide, and restrict any post or person from their social networking sites and report any fake accounts and news that may affect their accounts' privacy and security. The findings may aid the conclusion of Saravanakumar & Deepa (2016), whereas privacy concerns in social networking sites are relatively weak, and users' efforts to make suitable modifications to their social media privacy are far lower than in other modes of security operations. Furthermore, many social media users lack technological skills and efficacy, resulting in minimal privacy concerns regarding their content. Since the students' exposure to ICT is very high, problems and issues about privacy and security were added. These developments contributed to the web developers' maintaining privacy and security.

On the other hand, differentiation and learning recorded the lowest weighted mean

values of 3.65, interpreted as moderately agree, among the three sub-constructs of ICT self-efficacy. This reflects that students have a moderate knowledge and understanding of different information provided in social networking sites and other information sources, if correct or not. They cannot easily judge the reliability and trustworthiness of information on social networking sites and other sites on the internet. Moreover, the findings also observed that students are not much aware of the consequences of using social networking sites and the likes. Some violations are committed that affect the conduct on the use of ICT in learning. With this, despite the importance of media literacy in preparing students for later learning in adulthood and to a technology-based education, it is also a vital moment owing to the complexity of the material they receive and the malleability of their brains. The children and adolescents' abilities to assess the credibility of information were evaluated. The findings revealed that most of them have placed minors in front of information that is alien to their interests or hardly related to the issues that affect them (Middaugh, 2019).

Overall, the findings on students' ICT self-efficacy postulated are in moderation. Though they are considered digital natives because of their orientation towards technology, they still have room for improvement and expansion of knowledge on the technical side of ICT in education, focused on their self-efficacy. They still need to learn how they will become more secure on the use of ICT, their attitudes and demeanor towards it, and improve their social skills. It can be further inferred that the school should look into this matter since the new normal setting of education in this School Year was commenced through an online distance learning modality.

Table 3. Test of Significant Correlation between Information and Communications Technology (ICT) Literacy of Junior High School Students and their ICT Self-Efficacy

Computed r-value	t-value	Critical t-value	Decision	Interpretation
0.51	6.84	1.96	Reject the Null Hypothesis	Significant

$\alpha = 0.05$

The study's significant variables are Information and Communications Technology (ICT) literacy of Junior High School students and their ICT self-efficacy. With these variables this table seeks to ascertain whether the ICT literacy of Junior High School students correlated significantly to their ICT self-efficacy. The data collected were subjected to the Pearson Product Moment Correlation to determine the link between and among variables.

As can be gleaned from the analysis of Pearson's r analysis in Table 3, it shows that the ICT literacy of Junior High School students is correlated significantly to their ICT self-efficacy to a varying extent. The nature of correlation is positive, as shown by the r-value of 0.51; this means that the better ICT literacy they develop, the better self-efficacy may be perceived. Conversely, the lesser ICT literacy, it is expected that their ICT self-efficacy will also be lessened. The magnitude or degree of correlation is a substantial/moderate relationship based on the r-value of 0.51. This implies a substantial/moderate relationship between the ICT literacy and self-efficacy of Junior High School students.

Furthermore, findings from the analysis of the t-test for the significance of r show a computed t-value equals 6.84 at 0.05 level of significance where degree of freedom (d.f.) is equal to 150; the critical t-value was registered at

1.96. Comparison of the computed and critical t-values reveals that the computed t-value exceeds or is greater than the critical t-value, giving the researcher reasons to reject the null hypothesis. This may safely conclude that ICT literacy significantly affects their ICT self-efficacy.

This implies that the level of their ICT literacy exerts a significant relationship to their self-efficacy. This implies that students show competence and self-confidence as digital literate students this new normal education set-up. The correlation of ICT literacy and self-efficacy may result in academic excellence in this new normal education set-up. As stipulated by Kay (2006), cited in the study of Wang & Cheng (2021), the stronger the student's self-efficacy towards ICT perceived, the better results from their performance. The more effective ICT literacy is, the more probable this favorable attitude is to encourage individuals to participate in ICT-related activities, and therefore the more significant the ICT literacy.

#### Proposed Enhancement Program

Table 4 shows the proposed enhancement program plan to improve further Junior High School students' ICT literacy and self-efficacy towards a successful ICT integration. The crafted enhancement program is based on the results of the analysis done by the researcher.

Table 4. Enhancement Program for Junior High School Students in the Digital Learning Environment

Topic	Objectives	Persons Involved	Duration	Expected Output
How to Manage the Information from the Digital World? A Systemic Review	<ol style="list-style-type: none"> <li>1. Discuss the flow of scientific information from the digital environment;</li> <li>2. Orient the students about the fundamental of the ethical and legal issues surrounding the access and management of information in the digital environment; and,</li> </ol>	School, Head, ICT Coordinator, School Research Coordinator, Faculty, and Students	Four Fridays equivalent to one month, every Friday of the month	At least 95% of the students will become knowledgeable and proficient in managing information in the digital learning environment.

<b>Topic</b>	<b>Objectives</b>	<b>Persons Involved</b>	<b>Duration</b>	<b>Expected Output</b>
	3. Guide students on safety and security procedures and information in a digital learning environment.			
My Apps! Programs and Application Software in the Digital Learning Environment	<ol style="list-style-type: none"> <li>1. Discuss and familiarize the different programs and software that can be used in the digital learning environment;</li> <li>2. Discuss the different search engines and applications that can be applied in the digital learning environment; and,</li> <li>3. Apply this software and program in the digital learning environment.</li> </ol>	School, Head, ICT Coordinator, School Research Coordinator, Faculty, and Students	Four Fridays equivalent to one month, every Friday of the month	At least 95% of the students will become knowledgeable and proficient in using the different programs and applications in the digital learning environment.
Fact or Fake! Assessing and Judging the Information Posted in the Digital Environment and Social Networking Sites	<ol style="list-style-type: none"> <li>1. Discuss the different techniques to determine the posted information, whether real or fake;</li> <li>2. Analyze the trustworthiness of the information in the digital environment and the social networking sites; and,</li> <li>3. Guide the students on the possible consequences of adapting information from the digital environment and spreading information on social networking sites.</li> </ol>	School, Head, ICT Coordinator, School Research Coordinator, Faculty, and Students	Four Fridays equivalent to one month, every Friday of the month	At least 95% of the students will become knowledgeable and proficient in assessing and judging the authenticity and trustworthiness of the information posted in digital environments and social networking sites.

### **Conclusion and Recommendation**

Based on the objectives raised in this study and the findings presented, this study concluded that junior high school students possess moderate ICT literacy. This study also found out that junior high school students agreed to their ICT self-efficacy in this new normal education set-up. This further concludes that even though they are so-called digital natives, they still have room for improvements to uplift their ICT literacy and self-efficacy in this new normal education setup. Furthermore, the findings revealed that the ICT literacy of junior high school students is correlated to their ICT self-efficacy.

The study recommends that the principal, academic coordinator, and teachers should pay careful attention to students' ICT literacy and self-efficacy, particularly those with inadequate information and digital literacy abilities,

and take appropriate action. As a result, principals and top management in educational institutions must be cautious about allocating appropriate resources to boost and develop students' self-efficacy, particularly those with low self-efficacy. Also, an enhancement program is recommended to unleash further their potential towards ICT and its role to their studies in new normal education set-up. This is to strengthen the knowledge and understanding of students about the essential domains in ICT literacy and self-efficacy in a digital learning environment. Enhancement programs may maintain and improve the literacy and self-efficacy of students towards ICT integration. This enhancement program can be included in the homeroom time of the class advisers or a separate program to be commenced in the school to assure that the welfare of the students is the

topmost priority of the school in this new normal education set-up. Moreover, this study proposed that teachers create exploratory classes that focus on increasing students' willingness to learn outside of the classroom with ICT integration. Future researchers, who are in the same line of interest, may undertake a similar study to assess further the ICT literacy and self-efficacy of junior high school students towards ICT.

## References

- Anthonyamy, L. (2020). Digital Literacy Deficiencies in Digital Learning Among Undergraduates. *Understanding Digital Industry*, 133-36.
- Baterna, H. B., Mina, T. D. G., & Rogayan Jr, D. V. (2020). Digital Literacy of STEM Senior High School Students: Basis for Enhancement Program. *International Journal of Technology in Education*, 3(2), 105-117.
- Bonanati, S., & Buhl, H. M. (2021). The digital home learning environment and its relation to children's ICT self-efficacy. *Learning Environments Research*, 1-21.
- Fazli, M. B., & Norazilah, S. (2016). Digital Literacy Awareness among Students.
- Ferrari, A. (2013). DIGCOMP: A framework for developing and understanding digital competence in Europe. In Y. Punie, & B. N. Brečko (Eds.). JRC scientific and policy reports Luxembourg: Publications Office of the European Union. <https://doi.org/10.2788/52966>.
- Hamutoglu, N. B., Gemikonakli, O., De Raffaele, C., & Gezgin, D. M. (2020). Comparative Cross-Cultural Study in Digital Literacy. *Eurasian Journal of Educational Research*, 88, 121-147
- Hatlevik, O. E., Throndsen, I., Loi, M., & Gudmundsdottir, G. B. (2018). Students' ICT self-efcacy and computer and information literacy: Determinants and relationships. *Computers & Education*, 118, 107-119. <https://doi.org/10.1016/j.compedu.2017.11.011>
- Hero, J.L. (2019). The impact of technology integration in teaching performance. *International Journal of Sciences: Basic and Applied Research (IJSBAR)*. 48(1), 101-114.
- Hero, J.L. (2020). Teachers' preparedness and acceptance towards information and communications technology (ICT) integration and its effect on their ICT integration practices. *Puissant – A Multidisciplinary Journal*, 1, 59-76..
- Jan, S. (2018). Investigating the Relationship between Students' Digital Literacy and Their Attitude towards Using ICT. *International Journal of Educational Technology*, 5(2), 26-34.
- Journell, W. (Ed.). (2019). *Unpacking fake news: An educator's guide to navigating the media with students*. Teachers College Press.
- Kahne, J., & Bowyer, B. (2017). Educating for democracy in a partisan age: Confronting the challenges of motivated reasoning and misinformation. *American Educational Research Journal*, 54(1), 3-34. <https://doi.org/10.3102/0002831216679817>
- Kay, R. H. (2006). Evaluating strategies used to incorporate technology into preservice education: A review of the literature. *Journal of research on technology in education*, 38(4), 383-408.
- Lorenzo, A. R. (2016). Effectiveness of the Computer and Internet Literacy Project in Public High Schools of Tarlac Province, Philippines. *Turkish Online Journal of Educational Technology-TOJET*, 15(2), 38-46.
- Marttunen, M., Salminen, T., & Utriainen, J. (2021). Student evaluations of the credibility and argumentation of online sources. *The Journal of Educational Research*, 1-12.
- Middaugh, E. (2019). More than just facts: promoting civic media literacy in the era of outrage. *Peabody Journal of Education*, 94(1), 17-31.
- Middaugh, E. (2019). Teen, social media and fake news. In Journell, W. (Ed.). *Unpacking fake news: An educator's guide to navigating the media with students* (pp. 42-58). Teachers College Press
- Musharraf, S., Bauman, S., Anis-ul-Haque, M., & Malik, J. A. (2018). Development and validation of ICT self-efficacy scale: exploring the relationship with cyberbullying and victimization. *International journal of environmental research and public health*, 15(12), 2867.
- Ng, W. (2013). Empowering students to be scientifically literate through digital literacy. In *Digital literacy: Concepts, methodologies, tools, and applications* (pp. 1219-1239). IGI Global.
- Papastergiou, M., Gerodimos, V., & Antoniou, P. (2011). Multimedia blogging in physical education: Effects on student knowledge and ICT self-efficacy. *Computers & Education*, 57(3), 1998-2010.
- Prensky, M. R. (2010). *Teaching digital natives: Partnering for real learning*. Corwin Press, USA.
- Rohatgi, A., Scherer, R., & Hatlevik, O. E. (2016). The role of ICT self-efficacy for students' ICT use and their achievement in a computer and information literacy test. *Computers & Education*, 102, 103-116.

- Senkbeil, M., & Ihme, J. M. (2017). Motivational factors predicting ICT literacy: First evidence on the structure of an ICT motivation inventory. *Computers & Education*, 108, 145–158. <https://doi.org/10.1016/j.compedu.2017.02.003>
- Shopova, T. (2014). Digital literacy of students and its improvement at the university. *Journal on Efficiency and Responsibility in Education and Science*, 7(2), 26-32.
- Siddiq, F., & Scherer, R. (2019). Is there a gender gap? A meta-analysis of the gender differences in students' ICT literacy. *Educational research review*, 27, 205-217.
- Stanford History Education Group. (2016). *Evaluating information: The cornerstone of civic responsibility. An executive summary*. <https://sheg.stanford.edu/upload/V3LessonPlans/Executive%20Summary%2011.21.16.pdf>
- Saravanakumar, K., & Deepa, K. (2016). On privacy and security in social media—a comprehensive study. *Procedia Computer Science*, 78, 114-119.
- Tang, C. M., & Chaw, L. Y. (2016). Digital Literacy: A Prerequisite for Effective Learning in a Blended Learning Environment?. *Electronic Journal of E-learning*, 14(1), 54-65.
- Ukwoma, S. C., Iwundu, N. E., & Iwundu, I. E. (2016). Digital literacy skills possessed by students of UNN, implications for effective learning and performance: A study of the MTN Universities Connect Library. *New Library World*.
- Wang, Y., & Chen, I. H. (2021). A Multilevel Study: Factors Influencing Taiwan Primary School Students' ICT Literacy. *International Journal of Information and Education Technology*, 11(1), 16-23.
- Warschauer, M., & Xu, Y. (2018). Technology and equity in education. In J. Voogt, G. Knezek, R. Christensen, & K.-W. Lai (Eds.), *Second handbook of information technology in primary and secondary education* (2nd ed., pp. 1063–1079). Springer. [https://doi.org/10.1007/978-3-319-71054-9\\_76](https://doi.org/10.1007/978-3-319-71054-9_76)