

Digital Literacy and Online Safety Knowledge on Online Risk Behaviors among Senior High School Students

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ABSTRACT

This study explored the relationship between digital literacy and online safety knowledge on online risk behaviors among senior high school students at Jones Rural School. The researcher used stratified random sampling to select 282 respondents representing various strands. A descriptive correlation method was utilized. Data were gathered using a self-designed survey questionnaire verified by experts, piloted, and undergone a reliability test. Statistical Package for Social Sciences software was used for data analysis, where the computation of frequency counts, percentages, mean, standard deviation, t-test, one-way ANOVA, and Pearson correlation coefficient were examined and analyzed. Findings revealed a strong positive correlation between digital literacy and online safety knowledge, indicating that students with higher digital literacy tend to have better online safety knowledge. However, there is also a significant positive correlation between digital literacy and online risk behaviors, suggesting that more digitally literate students are more likely to engage in risky online behaviors. Furthermore, the study found that the strand significantly influences online safety knowledge and online risk behaviors, while sex and grade level do not show significant differences. It is recommended that strand-specific programs on digital literacy and safety be developed that are relevant to the unique needs of each field of education. Engaging students in interactive real-world scenarios during training, following up with regular workshops, creating monitoring and support systems, engaging parents, and making clear policies at the school level can help students be safer online and ensure that their digital literacy translates into safer online behaviors. Future studies should aim to better understand this paradoxical relationship between online safety knowledge and online risk behaviors, sparking further curiosity and interest in the field of digital literacy and online safety.

Keywords: *digital literacy, online risk behaviors, online safety knowledge*

Introduction

Digital literacy and online safety act as spanners within the modern usage of society, impacting the way students in senior high school navigate the online environment. This paper discusses the impact of digital literacy and knowledge in online safety on online risk behaviors among these students.

The worldwide increase in internet use has made digital literacy and safety online issues of paramount importance to the young. Students who do not have these competencies become much more vulnerable to online dangers such as cyberbullying, misinformation, and invasion of privacy (Livingstone et al., 2011; OECD, 2015).

The integration of digital literacy within the education system has been focused on including it in the Philippines' K-12 curriculum, but implementing these guidelines remains a challenge. Moreover, access or exposure to technology is widely disparate between urban and rural areas in the country (Taylor, 2024).

Digital literacy and online safety are being integrated into the curriculum at present, and educational institutions face enormous challenges (Buckingham, 2007). Effectiveness differs enormously among education models; parental participation and teacher preparedness vary widely and continue to be an area of investigation (Fraillon et al., 2014).

Settings like Jones Rural School present an additional barrier through limited technological infrastructure that would render the teaching of digital literacy and online safety ineffective. Studies have documented similar challenges in rural education contexts (Kentnor, 2015).

Despite much research into digital literacy and online safety, there has been a general lack of understanding of the behaviors of senior high school students, more specifically in diverse settings like the Philippines and rural schools such as Jones Rural School. This study, therefore, helps to bridge this gap and provides valuable insights that may have great impacts on future policies and educational strategies.

Methodology

The researcher adopted a descriptive-correlation approach. The descriptive design determined the profile of the respondents, their level of digital literacy, online safety knowledge, and the degree of online risk behavior. On the other hand, correlational analysis determined the relationship between digital literacy, online safety knowledge, and online risk behavior and their differences when grouped in terms of profile.

The respondents of the study were 282 senior high school students at Jones Rural School, as determined using stratified random sampling.

Table 1. *Distribution of Respondents per Strand*

Strand	TOTAL	Percentage	Sample	Sample per section
ABM	105	11.00%	31	10-11
AFA	128	13.50%	38	10-9
HE	101	10.60%	20	10
HUMSS	431	45.00%	127	18-19
STEM	191	19.90%	56	14
Total	956	100%	282	

The data was gathered using a self-designed survey questionnaire and was piloted with 30 non-respondents. Pilot test results showed that the survey questionnaire was highly reliable ($\alpha = .931$). The questionnaire was also validated by a panel of experts in the field of Media and Information Literacy (MIL).

The questionnaire was made up of inquiries centered on the profiles of the respondents, digital literacy, online safety knowledge, and online risk behaviors. Answers were translated into descriptive equivalents on a 5-point Likert scale. The scores were transformed into mean scores, and appropriate values were assigned.

Table 2. *Scale Weights, Ranges, and Descriptive Equivalent*

Weights	Ranges	Descriptive Equivalent
5	4.21 – 5.00	Strongly Agree
4	3.41 – 4.20	Agree
3	2.61 – 3.40	Moderately Agree
2	1.81 – 2.60	Disagree
1	1.00 – 1.80	Strongly Disagree

The data obtained was arranged and tabulated, and the computer was processed using the Statistical Package for Social Sciences (SPSS) software. Frequency counts and percentages were used to describe the demographic profile of the respondents. Weighted mean and standard deviation assessed the degree of frequency of digital literacy and online safety knowledge on online risk behavior. T-test was used to examine the differences between digital literacy, online safety knowledge, and online risk behavior when grouped according to sex and grade level. The one-way ANOVA was used to compare the means of digital literacy, online safety knowledge, and online risk behavior to determine if there is a significant difference between the strands. The Pearson r Correlations Coefficient was used to ascertain the relationship between digital literacy, online safety awareness, and risk conduct.

Results and Discussions

The following presents the results and discussion of the study:

Respondents' Profile

Out of 282 respondents in a specific study or survey, 114 are Male, constituting 40.4% of the sample. At the same time, 168 are Female, making up 59.6% of the sample, highlighting a slightly higher representation of female respondents.

The distribution of respondents according to their grade level reveals a relatively balanced allocation between Grade 11, constituting 44.3% of the total sample, and Grade 12, making up 55.7%, but with a somewhat higher representation of Grade 12 students when categorized into different educational strands related to senior high school education, the largest group is represented by the Humanities and Social Sciences (HUMSS) strand, encompassing 127 respondents or 45.0% of the sample. Following HUMSS, the Science, Technology, Engineering, and Mathematics (STEM) strand includes 56 respondents, or 19.9%. The Agri-Fishery Arts (AFA) strand accounts for 38 respondents or 13.5%, while the Accountancy, Business, and Management (ABM) strand includes 31 or 11%. The smallest group is the Home Economics (HE) strand, with 30 respondents, making up 10.6% of the total sample. The distribution across these strands may represent overall preferences in terms of education or direction within the setting, showing a great interest in humanities and social sciences.

Digital Literacy

Table 3 indicates that, overall, SHS students' perceptions of their digital literacy are relatively positive, as reflected in the overall mean of 3.82, which belongs to the category of "Agree." In essence, this means that students feel quite capable of using digital tools and resources effectively.

Students scored a mean of 3.56, indicating that they "Agree" that they have the technical skills needed to complete digital tasks. They also "Agree" with a mean score of 3.97 that they can find, evaluate,

and use information effectively. Students indicated, with a mean score of 3.94, that they are competent in the practice and knowledge of safe and ethical behavior online.

The students in SHS have a good digital literacy background. In this respect, continued efforts aimed at enhancing these skills will greatly benefit them educationally.

Table 3. *Level of Digital Literacy of Students*

Digital Literacy Dimensions	Mean	Descriptive Equivalent
Technical Proficiency	3.56	Agree
Information Literacy	3.97	Agree
Digital Citizenship	3.94	Agree
Overall Mean	3.82	Agree

Online Safety

Table 4 shows that SHS students are very conscious about online safety. The overall mean of 4.12 is interpreted as "Agree," meaning they can protect themselves in this aspect.

It can be argued that they can understand how to engage in online spaces and keep themselves safe, with a mean score of 4.03. The other point that the students all agreed on was being careful enough to keep their devices and personal information safe, with a mean score of 4.06. Lastly, students felt they practiced safe behavior and were responsible while on the internet, and they were given a high and positive mean score of 4.26.

SHS students are very knowledgeable about online safety, which shows that the digital literacy curriculum is working well.

Table 4. *Level of Online Safety of Students*

Online Safety Dimensions	Mean	Descriptive Equivalent
Digital Literacy	4.03	Agree
Cyber Security	4.06	Agree
Online Behavior	4.26	Strongly Agree
Overall Mean	4.12	Agree

Online Risks

Table 5 reveals that SHS students perceive a high level of engagement in risky online behaviors, with an overall mean score of 4.29, categorized as "Strongly Agree." This indicates that despite their knowledge of online safety, students often engage in behaviors that could expose them to risks.

With a mean score of 4.32, students "Strongly Agree" that their communication practices may include risky behaviors. Scoring 4.34, students "Strongly Agree" they frequently share information that might not always be safe. A mean score of 4.21 shows that students "Strongly Agree" that they participate in online activities that could be risky.

Results suggest a disconnect between students' knowledge of online safety and their actual online behaviors, highlighting the need for more targeted interventions to align their practices with their knowledge.

Table 5. *Level of Online Risks of Students*

Online Risks Dimensions	Mean	Descriptive Equivalent
Online Communication	4.32	Strongly Agree
Information Sharing	4.34	Strongly Agree
Online Activities	4.21	Strongly Agree
Overall Mean	4.29	Strongly Agree

Significant Difference between Digital Literacy, Online Safety Knowledge, and Online Risk Behavior when Grouped According to Profile

Table 6 examines whether there are significant differences in digital literacy, online safety knowledge, and online risk behavior based on sex, grade level, and educational strand of the respondents.

In terms of sex, the t-values and significance levels (p-values) indicate no significant differences between male and female respondents in terms of digital literacy ($t = .077$, $p = .853$), online safety knowledge ($t = .147$, $p = .894$), and online risk behavior ($t = 3.350$, $p = .382$). This suggests that both male and female students have similar levels of digital literacy, online safety knowledge, and engagement in online risk behaviors.

Grade level shows no significant differences between Grade 11 and Grade 12 students in digital literacy ($t = .120$, $p = .112$), online safety knowledge ($t = 0.70$, $p = .165$), and online risk behavior ($t = 0.02$, $p = .586$). This implies that students' grade levels do not significantly impact their digital literacy, online safety knowledge, or online risk behaviors.

When grouped according to strand, significant differences were found in online safety knowledge ($t = 2.910$, $p = .022$) and online risk behavior ($t = 9.865$, $p = .000$). This indicates that students' educational strands significantly influence their online safety knowledge and online risk behaviors. However, no significant difference was observed in digital literacy ($t = 1.276$, $p = .279$).

While sex and grade level do not significantly impact digital literacy, online safety knowledge, and online risk behavior, the educational strand does play a role, particularly in these areas. This highlights the need for tailored educational interventions that consider the specific requirements of each strand to effectively address these areas.

Table 6. *Significant Difference between Digital Literacy, Online Safety Knowledge, and Online Risk Behavior when grouped according to Sex, Grade Level, and Strand*

Respondents' Profile	Digital Literacy		Online Safety knowledge		Online Risk Behavior	
	<i>t</i>	<i>Sig.</i>	<i>t</i>	<i>Sig.</i>	<i>t</i>	<i>Sig.</i>
Sex	.077 ^{ns}	.853	.147 ^{ns}	.894	3.350 ^{ns}	.382
Grade Level	.120 ^{ns}	.112	0.70 ^{ns}	.165	0.02 ^{ns}	.586
Strand	1.276 ^{ns}	.279	2.910*	.022	9.865**	.000

****.** Correlation is significant at the 0.01 level (2-tailed).

***** Correlation is significant at the 0.05 level (2-tailed).

ns. Not significant

Significant Relationship between Digital Literacy, Online Safety, and Online Risk

Table 7 explores the correlations between digital literacy, online safety knowledge, and online risk behavior using Pearson correlation coefficients.

Table 7. *Relationship between Digital Literacy, Online Safety, and Online Risk*

Correlations				
		Digital Literacy	Online Safety	Online Risk
Digital Literacy	Pearson Correlation		.658**	.503**
	Sig. (2-tailed)		.000	.000
Online Safety	Pearson Correlation	.658**		.715**
	Sig. (2-tailed)	.000		.000
Online Risk	Pearson Correlation	.503**	.715**	
	Sig. (2-tailed)	.000	.000	

***. Correlation is significant at the 0.01 level (2-tailed).*

There is a strong positive correlation ($r = .658$, $p = .000$) between digital literacy and online safety knowledge, indicating that students with higher digital literacy also tend to have better online safety knowledge. This correlation is significant at the 0.01 level.

The correlation between digital literacy and online risk behavior is positive and significant ($r = .503$, $p = .000$), suggesting that as digital literacy increases, the likelihood of engaging in online risk behaviors also increases. This relationship, while positive, might indicate that more digitally literate students are also more active online and, hence, more exposed to potential risks.

There is a very strong positive correlation ($r = .715$, $p = .000$) between online safety knowledge and online risk behavior. This significant correlation implies that students who are more knowledgeable about online safety also report higher engagement in risky online behaviors.

This finding may suggest a paradoxical relationship with the measure in that, despite a high level of awareness, students still maintain risky behaviors, probably due to overconfidence or greater exposure to online environments.

Conclusions

In general, senior high school students have high digital literacy and knowledge concerning online safety, yet they continue to practice risky online behaviors. The differences in online safety knowledge and risky behaviors are mainly seen as being influenced by students' educational strands rather than by sex or grade level in most cases.

It should focus on problems that are developing strand-specific digital literacy and safety programs to help meet unique demands within every education field. In relation to the application of such knowledge in effective ways within daily life, it shall contain interactive real-world scenarios for the students. Workshops and training would help remind the students and update them about new threats and safe online practices. Monitoring arrangements with support, such as counseling, should also be provided to students who have risky online behavior. Involve parents—inform them about what is being done at school and provide the resources and education needed to continue safe practices at home. Finally, some clear policies for the schools, including guidelines on acceptable behavior when online, should be developed, with resources available for those who need help.

By being sensitive to these strategies, schools will be better placed to ensure enhanced online safety for their SHS students and that their digital literacy really does translate into safer online behavior.

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