The Relationship between Digital Resource Availability and Intentional Learning among High School Science Students in Valencia City, Bukidnon, Philippines

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ABSTRACT

In an increasingly digital world, students have access to a variety of digital resources that can enhance their learning experiences. However, many high school students struggle with intentional learning, particularly in science subjects. This study investigates the relationship between digital resource availability and intentional learning among 8th-grade students at Valencia National High School in the Philippines, contributing to a significant knowledge gap in educational research. The primary objectives include assessing the availability of digital resources, evaluating students' levels of intentional learning, and exploring the correlation between these two variables. A descriptive-correlational research design was employed, utilizing survey questionnaires administered to 139 Grade 8 students. Results indicated that students perceive the availability of digital resources as mostly satisfactory, particularly in terms of range and relevance. However, their engagement in intentional learning is moderate, with motivation being higher than the use of effective learning strategies. Statistical analysis revealed a significant positive correlation ($r = 0.521$) between digital resource availability and intentional learning. These findings highlight the importance of integrating digital resources into educational practices to foster deeper student engagement and enhance learning outcomes. Addressing accessibility and promoting effective learning strategies, educators can better support students in achieving their academic goals, ultimately improving their educational experiences and performance in science subjects.

Keywords: Availability, Digital Resource, High School, Intentional Learning, Science Students

INTRODUCTION

In today's digital-driven world, students have almost unlimited access to resources like smartphones, computers, the internet, social media, blogs, educational apps, and e-books. This allows them to learn from places like home, or even coffee shops. Although these digital tools can help with education, many students still don't perform as well as expected. Even though there are various teaching methods aimed at meeting students' needs, some research shows that these "customized" approaches aren't always effective. Additionally, the effect of digital resources on students' motivation to learn hasn't been thoroughly studied.

Many students are unsure about how to engage in intentional learning, resulting in missed opportunities for deeper understanding and skill development [1]. In the Philippines, a study indicates that students often rely on traditional learning methods and are unaware of more effective strategies for purposeful engagement in their studies [2]. Another critical gap reported that disparities in technology access hinder students' ability to engage in intentional learning effectively [3]. Students often feel pressured to conform to outdated learning styles that do not promote active engagement [4].

Students have the inability to adopt effective learning methods despite the benefits towards them [5]. The mere reasons lie in a weak sense of self-efficacy, and lack of established effective learning practices. A lack of personal learning intention in a subject matter can also lead to either resistance or mere compliance with learning tasks without learning itself [6]. Motivation remains another challenge, as many students struggle with intrinsic

motivation necessary for intentional learning. It was found that external pressures often overshadow personal interest, making it difficult for students to engage deeply with their studies [1]. Lastly, the assessment methods used in many educational systems can limit the development of intentional learning. Standardized tests often do not reflect a student's ability to apply knowledge in real-life situations [7]. These studies collectively illustrate the various challenges facing intentional learning and highlight the need for targeted interventions to address these gaps.

In response to concerns regarding students' low motivation, and low effective learning strategies in learning, digital resources availability has been studied to determine their relationship with the intentional learning of high school students in science.

Numerous studies have examined the availability of digital resources and their implications for education. For example, a study found that students with greater access to digital tools showed improved engagement and academic performance in various subjects [3]. Similarly, in the Philippines, a study highlighted that schools integrating digital resources into their curricula saw a marked increase in student participation and learning outcomes [8]. Internationally, access to online learning platforms enhanced students' academic performance and motivation. The researchers found that when students had the right digital tools, they were more likely to take charge of their learning and engage actively with the material [9]. In the Philippines, a study examined how integrating digital tools into lesson plans improved student participation and interest in learning [8]. They noted that students became more motivated when they could access various online resources, which allowed for more interactive and personalized learning experiences. In addition, students who had access to interactive digital tools were better able to analyze information and apply their knowledge in real-world situations. This finding suggested that digital resources not only support information acquisition but also enhance higher-order thinking skills and access to digital resources can positively influence student learning.

The relationship between digital resource availability and intentional learning is supported by a study which emphasized that digital resources not only facilitate access to information but also encourage self-directed and collaborative learning among students [10]. Students in the Philippines who actively engaged with digital tools were more likely to exhibit intentional learning behaviors, such as goal setting and self-assessment [7]. These studies collectively reinforce the importance of integrating digital resources into educational practices to boost intentional learning among students.

Objectives

This study aimed to explore how the availability of digital resources affects intentional learning in science among 8th graders at Valencia National High School during the 2024-2025 school year. Specifically, it aimed to:

1. Determine the level of digital resources availability experienced by students in terms of accessibility, range and relevance, and technical support and training.
2. Identify the level of intentional learning of students in terms of motivation, and learning strategies.
3. Find out the relationship between digital resource availability and intentional learning of students in Science 8.

METHODOLOGY

A. Research Design

This study used a descriptive-correlational research design to investigate the relationship between digital resources availability and intentional learning. To characterize the population and phenomenon under investigation, descriptive statistics, including the mean, was utilized. The research design included a survey questionnaire, which was administered to grade 8 cream class students from Basic Education Curriculum (BEC) of Valencia National High School in the Division of Valencia City.

B. Locale of the Study

The pilot test of this study was conducted at Bukidnon National High School, located in the Division of

Malaybalay City. This school was selected because of its mega school category, offering several programs, has same level in terms of quantity of students, same to the target of this research. The locale of the study encompasses Valencia National High School of Division of Valencia City. The population for this research consists of approximately 139 students under Basic Education Curriculum (BEC),cream class sections of grade 8 level in Valencia National High School. These students shared the same level of interests. This study aimed to provide valuable insights that can increase intentional learning in science.

C. Participants of the Study

There will be three (3) complete cream classes that will take part in the study in Grade 8 level of Valencia National High School under the Basic Education Curriculum (BEC) officially enrolled in school year 2024-2025. Assurance will be made that the classes involved in the study shared similar characteristics in terms of academic standing, interests and limitations.

D. Research Instrument

Two research instruments were utilized in this study. The first instrument [18] assessed the levels of digital resource availability, a standardized questionnaire was employed, demonstrating good reliability with a Cronbach alpha of 0.867. The instrument for digital resources availability included three sub-variables: accessibility of digital resources, range and relevance of digital resources, and technical support and training. Each sub-variable consisted of ten indicators, which were rated using a five-point Likert scale to evaluate the students' responses.

The scoring procedure was used to determine the level of digital resources availability experienced by students.

Scale	Range	Descriptive Rating	Qualitative Interpretation
1	1.00-1.49	Strongly Disagree	Digital Resources are completely unavailable
2	1.50-2.49	Disagree	Digital Resources are mostly unavailable
3	2.50-3.49	Neither	Undecided about digital resources availability
4	3.50-4.49	Agree	Digital Resources are mostly available
5	4.50-5.00	Strongly Agree	Digital resources are completely available

The second instrument [19] assessed the levels of intentional learning which employed a standardized questionnaire, demonstrating good reliability with a Cronbach alpha of 0.843. The instrument for intentional learning included two sub-variables: motivation section which consisted of 12 indicators, and learning strategies section with 28 indicators. These were rated using a seven-point Likert scale to evaluate the students' responses.

The scoring procedure was used to determine the level of intentional learning of students.

Scale	Range	Descriptive Rating	Qualitative Interpretation
1	1.00-1.49	Not at all true to me	No motivation; no learning strategies use
2	1.50-2.49	Slightly untrue of me	Very low motivation, very little learning strategies use
3	2.50-3.49	Somewhat untrue of me	Low motivation; little learning strategies use
4	3.50-4.49	Neither true nor untrue of me	Neutral; maybe has learning strategies use
5	4.50-5.49	Somewhat true of me	Somewhat with motivation; few learning strategies use

6	5.50-6.49	Mostly true of me	Mostly with motivation; several learning strategies use
7	6.50-7.00	All are true to me	High motivation; multiple learning strategies use

E. Data Gathering Procedure

A formal letter was sent through the Secondary School Principal of Bukidnon National High School to request permission for a pilot test of the survey questionnaires with the first section of Grade 8 students under the Basic Education Curriculum (BEC). The pilot test was successfully conducted with 28 students. Afterward, a formal letter was also sent to the Secondary School Principal of Valencia National High School, where the main study took place. This letter asked for permission and approval to carry out the research among Grade 8 students in the cream section of Basic Education Curriculum (BEC). A set of questionnaires was given to 139 Grade 8 students. The first set asked about the availability of digital resources, and the second set focused on intentional learning. The entire process took about an hour.

F. Statistical Techniques

To help clearly analyze and explain the data gathered from the survey questionnaires, the researchers employed the following statistical tools. Descriptive statistics, such as the mean, were used to determine the level of digital resources availability, and intentional learning. Pearson correlation was utilized to identify the relationship of digital resources availability to the intentional learning.

RESULTS AND DISCUSSIONS

A. Digital Resources Availability

Table 1 presents a summary of the mean scores for digital resources availability across three sub-variables: accessibility of digital resources, range and relevance of digital resources, and technical support and training. A total of thirty indicators represents digital resources availability with 10 within each variable. The results indicate that the range and relevance of digital resources achieved the highest mean score of 3.83, followed closely by technical support and training with a mean score of 3.78. On the other hand, accessibility of digital resources recorded the lowest mean score of 3.74.

Table I. Summary of Mean Scores of Digital Resources Availability

Sub-variable	**Mean**	**Descriptive Rating**	**Qualitative Interpretation**
Overall Mean	3.78	Agree	Digital Resources are mostly available
Accessibility of digital resources	3.74	Agree	Digital Resources are mostly available
Range and relevance of digital resources	3.83	Agree	Digital Resources are mostly available
Technical Support and training	3.78	Agree	Digital Resources are mostly available

Range	**Qualitative Interpretation**	
1.00-1.49	Digital Resources are completely unavailable	
1.50-2.49	Digital Resources are mostly unavailable	
2.50-3.49	Undecided about digital resources availability	

3.50-4.49	Digital Resources are mostly available	
4.50-5.00	Digital resources are completely available	

The findings in table 1 for digital resources availability reveals an overall mean score of 3.78, indicating that grade 8 students in Valencia National High School generally agree that digital resources are mostly available. When students perceive digital resources positively, they are more likely to use them more often and effectively, leading to better learning and academic performance [20]. Moreover, it can boost mental benefits among students like greater motivation, confidence, and a feeling of connection, which helps overall well-being in school [21]. Among the sub-variables, the highest mean score is 3.83 for the range and relevance of digital resources. This implies that students find the variety and applicability of digital resources to be quite beneficial for their needs [22], as these provide wider, quick, and round-the-clock access to up-to-date information that supports academic and research activities [23]. A broad range of relevant resources can enhance learning and information access, making it easier for students to find materials that suit their specific requirements [24] .

On the other hand, the lowest mean score is 3.74 for the accessibility of digital resources, which is still in the "agree" category. While this score is relatively high, it indicates that there might be some barriers to accessing these resources. This could include factors like internet connectivity issues, students' interface challenges, or a lack of awareness about available resources [25]These problems highlight the need to improve digital infrastructure, provide better training for users, and raise awareness about available resources to ensure fair and effective digital learning experiences among students [25].

Furthermore, the results highlight the importance of ensuring that digital resources not only exist but are also accessible to all students at Valencia National High School. The high score for range and relevance suggests that when resources are varied and pertinent, they are more likely to be utilized effectively [26]. However, the lower accessibility score indicates that without adequate access to digital resources, even the best resources may not reach their intended audience [27]. This calls for targeted interventions to improve digital literacy, particularly in areas where accessibility is a concern.

The diversity of digital resources significantly impacts students' satisfaction and engagement [11]. Similarly, that while many educational institutions have adopted digital tools, challenges in accessibility remain a significant barrier, particularly in rural areas [12]. Additionally, a global analysis emphasized the need for continuous improvement in digital access to ensure equitable resource distribution, aligning with the findings of this study [13].

While the availability of digital resources is acknowledged positively, it is essential to focus on improving accessibility to ensure that all students can benefit from the range and relevance of these digital resources.

B. Intentional Learning

Range	**Qualitative Interpretation**
1.00-1.49	No motivation; no learning strategies use
1.50-2.49	Very low motivation, very little learning strategies use
2.50-3.49	Low motivation; little learning strategies use
3.50-4.49	Neutral; maybe has learning strategies use
4.50-5.49	Somewhat with motivation; few learning strategies use
5.50-6.49	Mostly with motivation; several learning strategies use
6.50-7.00	High motivation; multiple learning strategies use

Table 2 presents a summary of the mean scores of intentional learning across two sub-variables: motivation and

learning strategies. A total of 40 indicators represents intentional learning with 12 for motivation section and 28 within learning strategies section. The results indicate that motivation section achieved the highest mean score of 5.49, while learning strategies section gained the lowest mean score of 5.27.

Table II. Summary of Mean Scores of Intentional Learning

Sub-variable	Mean	Descriptive Rating	Qualitative Interpretation
Overall Mean	5.34	Somewhat true to me	Somewhat with motivation; few learning strategies use
Motivation	5.49	Somewhat true of me	Somewhat with motivation; few learning strategies use
Learning Strategies	5.27	Somewhat true of me	Somewhat with motivation; few learning strategies use

The summary table for intentional learning shows an overall mean score of 5.34, indicating that grade 8 students at Valencia National High School feel that the statement about intentional learning is somewhat true for them. This suggests a moderate level of motivation and an acknowledgment of the use of some learning strategies, indicating that students are somewhat involved, but they may not be using the best approaches to get the most out of their learning [28]. This suggest that students use varied approaches to learning strategies [29]. Among the sub-variables, the highest mean score is 5.49 for motivation, which indicates that participants generally feel somewhat motivated in their learning endeavors. This finding highlights the importance of motivation as a driving force in the learning process, suggesting that when learners feel motivated, they are more likely to engage in their studies [30]. As this is grounded to Self Determination Theory (SDT), students with higher intrinsic motivation are more genuinely engaged, showing enthusiasm, commitment, and a better understanding of their learning [31].

Conversely, the lowest mean score is 5.27 for learning strategies, which is still in the "somewhat true" category. This implies that while grade 8 students may feel motivated, they might not be utilizing a diverse range of effective learning strategies. This gap can limit the potential for deeper understanding and retention of information, which are crucial for successful learning outcomes [32], as limited student engagement negatively affects cognitive processing and retention ability, making it difficulty to grasp learning [33]

The results suggest that while motivation is relatively high, there is a need to improve the use of effective learning strategies. Encouraging students to adopt a wider variety of strategies could enhance their engagement and effectiveness in learning. Based on a study [34], when students diversify their learning approaches and take charge of their study habits, they become more engaged and achieve better outcomes in their studies. Thus, educational programs should focus not only on boosting motivation but also training students in various learning strategies to complement withmotivation.

Motivation significantly impacts the use of learning strategies, with motivated students more likely to engage in effective practices [14]. Additionally, many Filipino students exhibit high motivation but often lack training in diverse learning strategies, which can hinder their academic performance [15]. Furthermore, the need for educators to address both motivation and strategy is to optimize learning outcomes [16].

While the findings indicate a good level of motivation, it is essential to support grade 8 students of Valencia National High School in developing and utilizing effective learning strategies to maximize their educational experiences.

C. Correlation of the Variables

Pearson correlation was used to assess the degree of relationship between the dependent variable which is the Digital Resources Availability and independent variable which is the Intentional Learning.

Table III. Relationship between Digital Resources Availability and Intentional Learning

		Digital Resources Availability	**Intentional Learning**
Digital Resources Availability	Pearson Correlation	1	.521**
	Sig. (2-tailed)		.000
	N	139	139
Intentional Learning	Pearson Correlation	.521**	1
	Sig. (2-tailed)	.000	
	N	139	139

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

The correlation table between digital resources availability and intentional learning reveals a significant positive relationship, with a Pearson correlation coefficient of 0.521. This indicates a moderate to strong correlation between the two variables, suggesting that as the availability of digital resources increases, so does the level of intentional learning among grade 8 students of Valencia National High School. The significance level of 0.000 confirms that this relationship is statistically significant, meaning it is unlikely to have occurred by chance.

In this analysis, the overall findings indicate that both digital resources availability and intentional learning are positively interrelated. The higher availability of digital resources likely supports and enhances intentional learning, allowing students to access various materials that facilitate their educational processes [35]. This suggests that having access to resources helps students connect better with the content, which boosts their understanding and motivation [35].

The results suggested that educational institutions and policymakers should prioritize the enhancement of digital resources to boost intentional learning among students [36]. When these students have easy access to diverse and relevant digital tools, they are more likely to engage in purposeful learning activities, which can lead to improved academic performance and skills development [37].

Findings from a study found that increased access to digital resources significantly enhances students' intentional learning behaviors [35]. Similarly, a study highlighted those Filipino students who had better access to digital resources exhibited higher levels of motivation and engagement in their learning processes [2]. Furthermore, the importance of integrating digital tools into educational practices to promote active and intentional learning strategies [17].

In summary, the significant correlation between digital resources availability and intentional learning underscores the need for educational stakeholders to invest in and improve digital resources, as they play a vital role in enhancing students' intentional engagement and overall academic success.

CONCLUSION

Based on the findings of the study, it is clear that while students at Valencia National High School generally perceive digital resources as available, there are still gaps in accessibility and effective learning strategies. To improve this situation, schools should focus on enhancing internet connectivity and providing training for both students and teachers on how to effectively use these digital tools. This can involve workshops or tutorials that demonstrate how to access and utilize various online resources, helping students become more comfortable and confident in their learning.

Additionally, it is important to encourage a diverse range of learning strategies among students. Schools can implement programs that teach effective study techniques and promote self-directed learning. By integrating activities that require goal setting, self-assessment, and collaborative projects, students can develop a deeper

understanding of the content and improve their engagement. Combining motivation with practical learning strategies will not only enhance students' academic performance but also foster a more active and intentional approach to their studies.

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