

Utilization and Effectiveness of Offline Digital Electronic Library (ODEL): Their Influence on Learners' Engagement

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ABSTRACT

This study determined the utilization and effectiveness of the Offline Digital Electronic Library (ODEL) and their influence on learners' engagement among Grade 7 - 10 learners at Jaro National High School, Fajardo Extension, Iloilo City, Philippines, during the Academic Year 2025–2026. Employing a quantitative descriptive-correlational research design, the study involved 353 respondents selected through stratified random sampling to ensure proportional representation across grade levels. Data were collected using a researcher-developed and validated questionnaire, with reliability established through pilot testing. Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS), utilizing frequency counts, percentages, weighted means, independent samples *t*-tests, one-way analysis

of variance (ANOVA), and multiple regression analysis at a 0.05 level of significance. The findings revealed that ODEL utilization was rated "To a Great Extent," indicating that most learners consistently used the offline digital library in their learning engagement. Its effectiveness was rated "Effective," demonstrating that ODEL has fully met its intended outcomes most of the time. Learners' engagement was likewise rated "To a Great Extent," reflecting that most learners have attention, interest, and participation in all learning activities. Significant differences in utilization, effectiveness, and engagement were observed when respondents were grouped according to age and grade level, whereas no significant differences were found based on sex, access to digital devices at home, and type of digital learning resources accessed. Multiple regression analysis further revealed that both utilization and effectiveness significantly influenced learners' engagement, with effectiveness emerging as the stronger influencer. The study concludes that ODEL is an effective educational innovation that enhances learner engagement and recommends its sustained implementation, continuous enhancement, and integration into classroom instruction to promote accessible, inclusive, and technology-supported learning, particularly in schools with limited internet connectivity.

Keywords: *Offline Digital Electronic Library (ODEL), utilization, effectiveness, learners' engagement, digital learning resources*

INTRODUCTION

In the context of 21st-century education, digital learning has become an essential component in developing learners' critical thinking, collaboration, and independent learning skills. Educational institutions are encouraged to integrate technology-based resources to enhance access to quality education and improve learning outcomes. The Department of Education (2020) emphasizes the integration of digital tools in teaching and learning

to equip learners with necessary digital competencies, while UNESCO (2021) highlights that equitable access to digital learning resources is vital in promoting inclusive and continuous education, especially in diverse learning environments.

Despite these goals, the actual implementation of digital learning remains a challenge in many schools. At Jaro National High School, Fajardo Extension, learners experience limited or unstable internet connectivity, which restricts their access to online learning platforms. As a result, printed modules remain the primary learning material, which increases resource demands and limits flexibility in learning. School records also show that only 12% of learners utilized the traditional library during School Year 2023–2024 out of 3,161 learners (Jaro NHS Annual Library Report, 2024). In addition, class disruptions due to natural calamities and insufficient classroom availability further affect the continuity of learning and learner engagement.

Given these conditions, there is a need to explore alternative digital learning solutions that function without internet connectivity. Offline Digital Electronic Library (ODEL) systems present a potential solution by providing access to digital learning materials in offline mode. However, despite the existence of such systems, there is limited empirical evidence examining the combined influence of ODEL utilization and effectiveness on learners' engagement, particularly among junior high school learners in low-connectivity environments. Most existing studies focus on online learning systems, leaving a research gap in offline digital learning implementation in basic education settings.

This study was conducted to address this gap by examining the utilization and effectiveness of the Offline Digital Electronic Library (ODEL) and its influence on learners' engagement among Grade 7 to Grade 10 learners at Jaro National High School, Fajardo Extension. The findings were to provide empirical evidence on the role of offline digital learning systems in improving learner engagement in areas with limited internet access and contribute to the development of more accessible, sustainable, and resilient learning systems in basic education.

Statement of the Problem

This study aimed to determine the Utilization and Effectiveness of the Offline Digital Electronic Library (ODEL): their Influence on Learners' Engagement among Grade 7 to 10 learners at Jaro National High School, Fajardo Extension, Jaro, Iloilo City, Philippines, during the School Year 2025-2026.

Specifically, this study seeks to answer the following questions:

1. What is the profile of the respondents in terms of age, sex, grade level, accessibility of digital devices at home, and type of resources accessed?
2. What is the extent of utilization of ODEL among learners when taken as a whole and when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed?
3. What is the level of effectiveness of ODEL as assessed by the respondents when taken as a whole and when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed?
4. What is the extent of learners' engagement when taken as a whole and when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed?
5. Are there significant differences in the extent of utilization of ODEL among learners when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed?
6. Are there significant differences in the level of effectiveness of ODEL as assessed by the respondents when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed?
7. Are there significant differences in the extent of learners' engagement when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed?
8. Do the utilization and effectiveness of Offline Digital Electronic Library (ODEL) significantly influence learners' engagement?

Theoretical Framework

This study is anchored on three interconnected theories: Self-Determination Theory (SDT), Technology Acceptance Model (TAM), and Constructivist Learning Theory, which collectively explain learners' utilization of the Offline Digital Electronic Library (ODEL), its perceived effectiveness, and learners' engagement.

Self-Determination Theory (SDT), as proposed by Ryan and Deci (2020), posits that learners are more engaged when their psychological needs for autonomy, competence, and relatedness are satisfied. In the context of this study, ODEL supports learner autonomy by allowing independent access to learning materials. This sense of independence enhances learners' motivation and contributes to higher levels of engagement in learning activities.

The Technology Acceptance Model (TAM), developed by Davis (1989), explains technology utilization through perceived usefulness and perceived ease of use, which influence users' behavioral intention and actual system use. In this study, learners are more likely to utilize ODEL when they perceive it as useful in improving their academic performance and easy to navigate. This perceived acceptance directly influences the extent of ODEL utilization and contributes to its effectiveness as a learning tool.

Constructivist Learning Theory, associated with Vygotsky (1978), emphasizes that learners actively construct knowledge through interaction with learning materials and experiences. In relation to this study, ODEL provides an environment where learners independently engage with digital content, allowing them to interpret, organize, and construct meaning from the information presented. This active learning process enhances both understanding and meaningful engagement.

These theories collectively support the conceptual framework of the study. TAM explains the factors influencing ODEL utilization, SDT explains the motivational basis of learners' engagement, and Constructivist Learning Theory explains how learners actively process and construct knowledge through ODEL, which also contributes to perceived effectiveness. Thus, when learners perceive ODEL as useful, easy to use, and supportive of independent learning, their utilization and engagement are strengthened, leading to improved learning experiences among Grade 7 to 10 learners.

Conceptual Framework

The conceptual framework of this study illustrated the relationship among the variables involved in examining the utilization and effectiveness of the Offline Digital Electronic Library (ODEL) and its influence on learners' engagement among Grades 7 to 10 learners at Jaro National High School, Fajardo Extension.

The independent variables consisted of the respondents' profiles, which include age, sex, grade level, accessibility of digital devices at home, and type of learning resources accessed. These profile variables served as descriptive factors that may influence learners' interaction with the Offline Digital Electronic Library (ODEL).

The dependent variables included the utilization of ODEL, the effectiveness of the ODEL system, and learners' engagement. Utilization refers to the extent of learners' use of ODEL in accessing learning materials, while effectiveness refers to the perceived usefulness, accessibility, and relevance of the system in supporting learning. Learners' engagement refers to the level of learners' participation, interest, and involvement in learning activities.

As presented in the framework, the respondents' profile is associated with both utilization and effectiveness of ODEL. These two variables are further associated with learners' engagement, indicating that the manner by which learners utilize and perceive the effectiveness of ODEL contributes to their level of engagement in learning activities. The framework suggests that higher utilization and perceived effectiveness of ODEL may lead to increased learner engagement among Grades 7 to 10 learners.

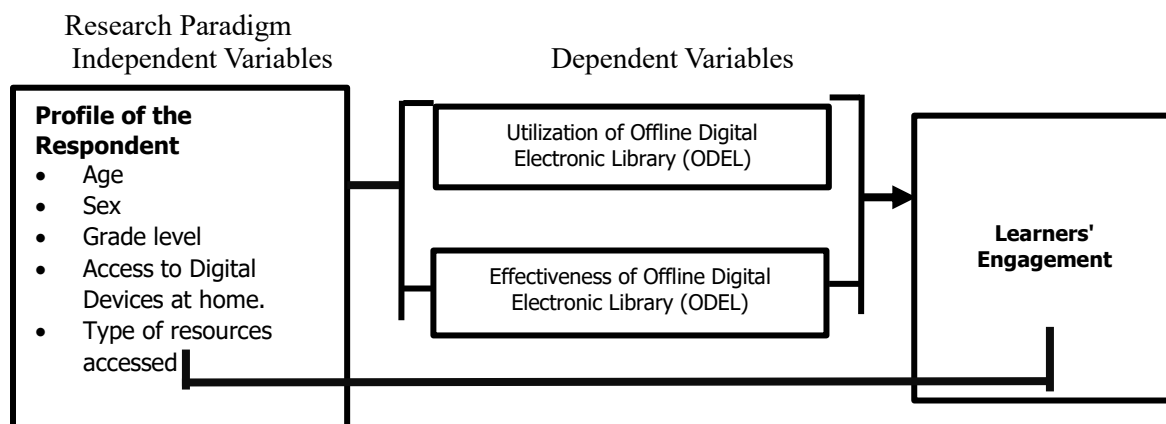


Figure 1. *The Conceptual Framework of the Study shows the relationship between Respondent Profile, ODEL Utilization and Effectiveness, and Learners' Engagement.*

METHODS

This chapter presents the research methodology employed in the study, including the research design, respondents of the study, data gathering instrument, validity and reliability of the instrument, data gathering procedure, and statistical tools used.

Research Design

This study employed a descriptive–correlational research design to examine the utilization and effectiveness of an offline digital electronic library (ODEL): its influence on learners' engagement.

Descriptive research was used to systematically describe a phenomenon or population without manipulating variables, aiming to present an accurate depiction of existing conditions, as explained by Creswell and Creswell (2021), Siedlecki (2020), and Loeb et al. (2021). This design is appropriate in educational research for describing learners' behaviors, perceptions, and conditions.

Correlational research, on the other hand, determines the relationship between variables without establishing cause-and-effect relationships, as discussed by Curtis et al. (2022) and Bloomfield and Fisher (2021). It is used to measure the strength and direction of relationships among naturally occurring variables.

In this study, the descriptive approach was used to assess the level of ODEL utilization, effectiveness, and learners' engagement, while the correlational approach was used to examine the relationships among these variables. Furthermore, multiple regression analysis was applied to determine whether ODEL utilization and effectiveness significantly predict learners' engagement. The term “influence” in this study refers to statistical prediction rather than causation, as no experimental manipulation was conducted.

The Respondents of the Study

The respondents of this study were Junior High School learners from Grades 7 to 10 at Jaro National High School, Fajardo Extension, Jaro, Iloilo City, Philippines, School Year 2025–2026.

The sampling frame consisted of all enrolled learners in these grade levels. A stratified random sampling technique was employed to ensure proportional representation across grade levels. This method was appropriate because the population was divided into distinct groups (Grades 7 to 10), and each group was represented proportionally in the sample.

The sample size was determined using Slovin's formula with a 5% margin of error. From a total population of 2,987 learners, a sample of 353 respondents was obtained. The respondents were distributed proportionally as

follows: 97 learners from Grade 7, 90 from Grade 8, 71 from Grade 9, and 95 from Grade 10. This approach ensured representativeness and minimized sampling bias.

Table 1. *Distribution of Respondents.*

Grade Level	N	n	(%)
GRADE 7	821	97	27.48
GRADE 8	765	90	25.50
GRADE 9	599	71	20.11
GRADE 10	802	95	26.91
Total	2987	353	100.00

Data Gathering Instrument

The researcher utilized a set of questionnaires as the primary tool for data collection, designed to measure the utilization, effectiveness, and learner engagement toward the Offline Digital Electronic Library (ODEL). The first part gathers the respondents' profiles, including age, sex, grade level, access to digital devices, and types of learning resources accessed.

The second part measures the extent of utilization of ODEL using a five-point Likert scale ranging from 5 (To a Very Great Extent) to 1 (To a Very Low Extent), consisting of 15 items. The third part evaluates the perceived effectiveness of ODEL using a five-point Likert scale ranging from 5 (Very High) to 1 (Very Low). The fourth part assesses the extent of learners' engagement in using ODEL using a five-point Likert scale ranging from 5 (To a Very Great Extent) to 1 (To a Very Low Extent), consisting of 15 items. It measures behavioral, emotional, and cognitive engagement, such as motivation, participation, and focus during ODEL use.

For the utilization of learners of the Offline Digital Electronic Library (ODEL), the scale and description are shown below:

Mean Range	Description	Interpretation
4.21 – 5.00	To a Very Great Extent	All learners consistently and effectively use the ODEL in their learning engagement.
3.41 – 4.20	To a Great Extent	Most learners consistently and effectively use the ODEL in their learning engagement.
2.61 – 3.40	To a Moderate Extent	Many learners consistently and effectively use the ODEL in their learning engagement.
1.81 – 2.60	To a Low Extent	Few learners consistently and effectively use the ODEL in their learning engagement.
1.00 – 1.80	To a Very Low Extent	Very few learners consistently and effectively use the ODEL in their learning engagement.

For the interpretation of learners' perceived effectiveness of the Offline Digital Electronic Library (ODEL), the following scale and description were used:

Mean Range	Description	Interpretation
4.21 – 5.00	Highly Effective	The ODEL has fully met its intended outcomes all this time.
3.41 – 4.20	Effective	The ODEL has fully met its intended outcomes most of the time.
2.61 – 3.40	Moderately Effective	The ODEL has fully met its intended outcomes sometimes.
1.81 – 2.60	Less Effective	The ODEL does not fully meet its intended functions most of the time.
1.00 – 1.80	Ineffective	The ODEL does not fully meet its intended functions all the time.

For the interpretation of learners' engagement toward the Offline Digital Electronic Library (ODEL), the following scale and description were used:

Mean Range	Description	Interpretation
4.21 – 5.00	To a Very Great Extent	All learners have the attention, interest, and participation in all learning activities.
3.41 – 4.20	To a Great Extent	Most learners have the attention, interest, and participation in all learning activities.
2.61 – 3.40	To a Moderate Extent	Many learners have the attention, interest, and participation in all learning activities.
1.81 – 2.60	To a Low Extent	Few learners have the attention, interest, and participation in all learning activities.
1.00 – 1.80	To a Very Low Extent	Very few learners have the attention, interest, and participation in all learning activities.

Validity of the Instrument

The validity of the research instrument was established through a rigorous validation process involving content experts in educational technology and research methodology. The instrument was validated by five (5) experts in education and research to ensure content validity. They evaluated the questionnaire based on clarity, relevance, and alignment with the study objectives. Their suggestions were incorporated into the final version of the instrument.

Reliability of the Instrument

The reliability of the research instrument was determined through a pilot testing procedure involving 30 learners from Jaro National High School before the actual administration of the questionnaire. This step was conducted to evaluate the internal consistency of the instrument and to detect any possible issues related to item clarity and response patterns.

The pilot test data were analyzed using Cronbach's Alpha coefficient, a widely used statistical measure of internal consistency. The results showed a Cronbach's Alpha of 0.894 for the Utilization section (15 items), 0.869 for the Effectiveness section (15 items), and 0.912 for the Engagement section (15 items). All obtained values exceeded the acceptable reliability threshold of 0.70, indicating that the items in each section demonstrate good to excellent internal consistency.

Furthermore, the pilot testing helped determine the appropriateness of the questionnaire in terms of completion time, ensuring that it was suitable for the intended respondents without causing fatigue or difficulty in answering.

Data Gathering Procedure

The data gathering process follows a systematic approach to ensure comprehensive and accurate data collection. Before administering the questionnaire, Permission to conduct the study was secured from the Graduate School and relevant authorities to allow the researcher to administer the instrument to identified respondents. A letter permit was sent to the office of the Schools Division Superintendent, Schools Division of Iloilo City, school principal of Jaro National High School, and other relevant authorities through formal letters explaining the purpose and methodology. Upon receiving approval, the researcher will coordinate with grade level coordinators to schedule the administration of the questionnaire. Prior to data collection, informed consent forms will be distributed to learners and their parents/guardians, explaining the voluntary nature of participation and assuring confidentiality of responses. Learners will be given clear instructions and sufficient time to complete the questionnaire. To ensure high response rates and data quality, the researcher will immediately check completed questionnaires for completeness and clarity before collecting them. The entire data gathering process is expected to take two weeks to accommodate all selected respondents across different grade levels.

Statistical Tools Used

The statistical tools used in the study are the frequency count, percentage, mean, t-Test, One-way Analysis of Variance, and Multiple Regression.

Frequency count. This was used to determine the number of responses of the respondents in terms of age, sex, grade level, access to digital devices at home, and type of resources.

Percentage. This was used to describe the proportion of respondents in terms of age, sex, grade level, access to digital devices at home, and type of resources.

Mean. This was used to determine the ODEL utilization, effectiveness, and learners' engagement in terms of age, sex, grade level, access to digital devices at home, and type of resources.

T-Test. The t-Test was used to determine the differences of ODEL utilization, effectiveness, and learners' engagement in terms of age, sex, grade level, access to digital devices at home, and type of resources.

One-Way Analysis of Variance. ANOVA was used to determine whether there were statistically significant differences in ODEL utilization, effectiveness, and learners' engagement based on age, sex, grade level, access to digital devices at home, and type of resources.

Multiple Regression. This was used to determine whether ODEL utilization and effectiveness significantly predict learners' engagement.

The statistical value (p-value) obtained from the test was used to determine whether the significance level was below or above the cut-off value of 0.05, serving as the basis for accepting or rejecting the null hypothesis.

RESULTS AND DISCUSSIONS

Profile of Respondents in Terms of Age, Sex, Grade Level, Accessibility of Digital Devices at Home, and Type of Resources Accessed.

Table 2 presents the demographic profile of the 353 respondents in terms of age, sex, grade level, accessibility of digital devices at home, and the type of resources accessed through the Offline Digital Electronic Library (ODEL).

In terms of age, the largest group of respondents were 13 years old (99 or 28.0%), followed by 15 years old (86 or 24.4%), 14 years old (81 or 22.9%), and 12 years old (73 or 20.7%). Only 12 respondents (3.4%) were 16 years old, while 2 respondents (0.6%) were 11 years old. This indicates that the respondents were primarily within the typical junior high school age range.

Regarding sex, 199 respondents (56.4%) were female, and 154 (43.6%) were male, indicating a slightly higher representation of female learners.

In terms of grade level, Grade 7 had the highest number of respondents (97 or 27.5%), followed by Grade 10 (95 or 26.9%), Grade 8 (90 or 25.5%), and Grade 9 (71 or 20.1%). This relatively balanced distribution across all junior high school grade levels.

For accessibility of digital devices at home, most respondents used smartphones (256 or 72.5%), followed by laptops (59 or 16.7%), tablets (35 or 9.9%), and desktop computers (3 or 0.8%). This finding shows that smartphones are the most accessible device for learners, making them the primary tool for accessing ODEL.

Regarding the type of resources accessed, modules were the most frequently used (218 or 61.8%), followed by lecture notes and study guides (90 or 25.5%), multimedia content (24 or 6.8%), and reference materials (21 or 5.9%). This suggests that learners primarily utilize curriculum-based instructional materials available in ODEL.

Overall, the respondents were predominantly junior high school learners aged 13 to 15 years, with a slightly higher proportion of females. Most accessed ODEL through smartphones and primarily used learning modules.

These findings are supported by Lucero et al. (2022), who emphasized that access to digital devices and digital readiness significantly influence learners' ability to utilize digital learning platforms. The predominance of smartphone users in this study highlights the importance of mobile-accessible offline learning systems in promoting learners' access to educational resources.

Table 2. The Profile of Respondents in Terms of Age, Sex, Grade Level, Accessibility of Digital Devices at Home, and Type of Resources Accessed.

Variables	f	%
Age		
11 years old	2	0.6
12 years old	73	20.7
13 years old	99	28.0
14 years old	81	22.9
15 years old	86	24.4
16 years old	12	3.4
Total	353	100.0
Sex		
Male	154	43.6
Female	199	56.4
Total	353	100.00
Grade Level		
Grade 7	97	27.5
Grade 8	90	25.5
Grade 9	71	20.1
Grade 10	95	26.9
Total	353	100.0
Accessibility of Digital Devices at Home		
Smartphone	256	72.5
Tablet	35	9.9
Laptop	59	16.7
Desktop	3	0.8
Total	353	100.0
Type of Resources Accessed		
Module	218	61.8
Multimedia Content	24	6.8
Reference Materials s	21	5.9
Lecture Notes/Study Guide	90	25.5
Total	353	100.0

Extent of Utilization of Offline Digital Electronic Library when Classified as a Whole

Table 3 presents the extent of utilization of the Offline Digital Electronic Library (ODEL) as perceived by the respondents. The overall mean of 4.22 (SD = 0.790) indicates that learners utilize ODEL “To a Very Great Extent.” This finding suggests that all learners consistently and effectively use the ODEL in their learning engagement.

Among the indicators, the highest-rated item was reviewing and comparing personal notes with ODEL content ($M = 4.72$, $SD = 0.693$), showing that learners regularly use the platform to reinforce what they have learned in class. This was followed by using ODEL for easy access to learner materials ($M = 4.47$, $SD = 0.678$) and accessing information without an internet connection ($M = 4.42$, $SD = 0.856$), both interpreted as to a Very Great Extent. These results highlight the value of ODEL in providing convenient and reliable access to learning resources, particularly in situations where internet connectivity is limited.

Learners also reported utilizing ODEL to a Very Great Extent for accessing digital learning materials ($M = 4.31$) and preparing for quizzes and examinations ($M = 4.27$). These findings suggest that learners consider ODEL a dependable academic resource that supports both daily classroom activities and assessment preparation.

The remaining indicators were rated to a Great Extent, with means ranging from 3.97 to 4.20. These include using ODEL regularly for studying, completing assignments and research, exploring new topics, accessing reference and interactive learning materials, supplementing classroom instruction, and finding the resources they need. Although these items received slightly lower ratings, they still reflect a consistently high level of utilization across various learning activities.

Overall, the findings indicate that learners make extensive use of ODEL because it provides accessible, relevant, and practical learning resources that support their academic needs. The platform appears to be particularly valuable in helping learners’ study independently, review lessons, and continue learning even without internet access.

These findings are supported by Rajabalee et al. (2020), who found that well-organized and accessible digital libraries encourage greater utilization and learner engagement. Their study emphasized that when educational resources are easy to access and relevant to learners’ needs, they are most likely to use them regularly. Similarly, the high level of ODEL utilization observed in the present study suggests that its accessibility and organization encourage learners to integrate it into their daily learning routines.

Table 3. *Extent of Utilization of Offline Digital Electronic Library when Classified as a Whole*

<i>As a learner, I utilize ODEL...</i>	Mean	Std Deviation	Remarks
1. regularly for my studies.	4.20	.807	To a Great Extent
2. least thirty minutes per session.	3.97	.847	To a Great Extent
3. whenever I have assignments and research to do.	4.20	.859	To a Great Extent
4. more than once a week for my studies.	4.01	.844	To a Great Extent
5. to access digital ls for my lessons.	4.31	.786	To a Very Great Extent
6. for easy access when I need it for studying.	4.47	.678	To a Very Great Extent
7. to access interactive learning materials.	4.05	.802	To a Great Extent
8. to access reference materials.	4.08	.842	To a Great Extent
9. to research additional learning resources beyond class materials.	4.08	.749	To a Great Extent
10. to study for quizzes and exam.	4.27	.676	To a Very Great Extent
11. to explore new topic.	4.26	.688	To a Great Extent

12. to supplement classroom learning.	4.10	.792	To a Great Extent
13. to information without requiring an internet connection.	4.42	.856	To a Very Great Extent
14. to review and compare my personal notes with the ODEL 1 content.	4.72	.693	To a Great Extent
15. to easily find the resources I need.	4.19	.931	To a Great Extent
Total	4.22	0.790	To a Great Extent

Legend: To a Very Great Extent = 4.21-5.00; To a Great Extent = 3.41-4.20; To a Moderate Extent = 2.61-3.40; To a Low Extent = 1.81-2.60; To a Very Low Extent = 1.00-1.80

Extent of Utilization of Offline Digital Electronic Library when Classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed

Table 4 presents the extent of utilization of the Offline Digital Electronic Library (ODEL) when respondents are grouped according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed. The overall mean of 4.20 (SD = 0.430) indicates that learners utilize ODEL to a Great Extent, suggesting that the platform is widely used across different groups of learners.

When classified according to age, 16-year-old learners recorded the highest mean ($M = 4.54$), followed by 14-year-olds ($M = 4.37$) and 13-year-olds ($M = 4.24$), all interpreted as to a Very Great Extent. Meanwhile, learners aged 11, 12, and 15 years utilized ODEL to a Great Extent. This pattern suggests that older learners tend to make greater use of the platform, possibly because they engage in more advanced learning tasks that require additional educational resources.

In terms of sex, female learners ($M = 4.25$) utilized ODEL to a Very Great Extent, while male learners ($M = 4.13$) rated their utilization to a Great Extent. Although both groups reported high levels of utilization, the slightly higher rating among female learners indicates greater engagement with the platform.

Across grade levels, Grades 8, 9, and 10 all utilized ODEL to a Very Great Extent, with Grade 9 recording the highest mean ($M = 4.35$). In contrast, Grade 7 learners rated their utilization to a Great Extent ($M = 3.98$). These findings imply that learners in the higher grade levels rely more on ODEL to support their learning activities.

With respect to the digital devices accessed at home, respondents using tablets ($M = 4.29$) and smartphones ($M = 4.21$) utilized ODEL to a Very Great Extent, while those using laptops ($M = 4.12$) and desktop computers ($M = 3.88$) reported utilization “To a Great Extent”. The results indicate that mobile devices, particularly smartphones and tablets, play an important role in making ODEL more accessible to learners.

When grouped according to the type of resources accessed, respondents who primarily used reference materials ($M = 4.40$) and lecture notes and study guides ($M = 4.21$) reported utilizing ODEL to a Very Great Extent. Meanwhile, those who mainly accessed modules ($M = 4.18$) and multimedia content ($M = 4.14$) rated their utilization “To a Great Extent”. This suggests that learners place high value on resources that provide additional explanations and support beyond regular classroom instruction.

Overall, the findings show that ODEL is widely utilized regardless of learners' demographic characteristics, grade level, device accessibility, or preferred learning resources. However, utilization tends to be higher among older learners, female learners, those in higher grade levels, users of mobile devices, and learners who access reference materials and study guides.

These findings are consistent with Lucero et al. (2022), who emphasized that access to digital devices and learners' digital readiness significantly influence the effective use of digital learning platforms. Likewise, Rajabalee et al. (2020) found that accessible and well-organized digital libraries encourage greater utilization by making learning resources easier for learners to locate and use. These studies reinforce the present findings, highlighting the importance of accessibility and resource availability in promoting the sustained use of ODEL.

Table 4. *Extent of Utilization of Offline Digital Electronic Library when Classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed*

Variables	Mean	Std. Deviation	Remarks
Age			
11 years old	4.04	.354	To a Great Extent
12 years old	3.95	.633	To a Great Extent
13 years old	4.24	.429	To a Very Great Extent
14 years old	4.37	.353	To a Very Great Extent
15 years old	4.17	.391	To a Great Extent
16 years old	4.54	.354	To a Very Great Extent
Sex			
Male	4.13	.567	To a Great Extent
Female	4.25	.385	To a Very Great Extent
Grade Level			
Grade 7	3.98	.572	To a Great Extent
Grade 8	4.31	.458	To a Very Great Extent
Grade 9	4.35	.295	To a Very Great Extent
Grade 10	4.22	.414	To a Very Great Extent
Accessed Digital Devices at Home			
Smart Phone	4.21	.483	To a Very Great Extent
Tablet	4.29	.362	To a Very Great Extent
Laptop	4.12	.506	To a Great Extent
Desktop	3.88	.206	To a Great Extent
Types of Resources			
Module	4.18	.509	To a Great Extent
Multimedia Content	4.14	.432	To a Great Extent
Reference Material	4.40	.506	To a Very Great Extent
Lecture Notes and Study Guide	4.21	.385	To a Very Great Extent
Overall	4.20	0.430	To a Great Extent

Legend: To a Very Great Extent = 4.21-5.00; To a Great Extent = 3.41-4.20; To a Moderate Extent = 2.61-3.40; To a Low Extent = 1.81-2.60; To a Very Low Extent = 1.00-1.80

Level of Effectiveness of Offline Digital Electronic Library When Taken as a Whole.

Table 5 presents the respondents' assessment of the effectiveness of the Offline Digital Electronic Library (ODEL). The overall mean of 4.19 (SD = 0.793) indicates "Effective, this suggests that the ODEL has fully met its intended outcomes most of the time.

Among the indicators, the highest mean was obtained by "ODEL gave me access to study materials without needing internet" (M = 4.31, SD = 0.655), followed by "ODEL has enabled me to enhance my academic performance" (M = 4.28, SD = 0.781), "ODEL has enhanced my learning experience to be more interactive and enjoyable" (M = 4.24, SD = 0.771), and "ODEL assists me in reviewing and preparing for exams" (M = 4.21, SD = 0.837). These items were all rated Highly Effective, indicating that learners particularly value ODEL for its

offline accessibility, its contribution to academic improvement, and its ability to make learning more engaging and effective.

The remaining indicators received High ratings, with mean scores ranging from 4.11 to 4.20. Respondents agreed that ODEL provides adequate learning resources, makes schoolwork easier, strengthens research and information-seeking skills, improves study confidence, supplies relevant learning materials, allows flexible learning within the school environment, supports learning continuity during internet disruptions, encourages better study habits, and promotes independent learning. Although these aspects were rated slightly lower than the highest-ranked items, they consistently reflect learners' positive experiences with the platform.

Overall, the findings demonstrate that ODEL effectively supports learners' learning by providing accessible, reliable, and relevant educational resources. Its ability to function without an internet connection, together with its positive influence on academic performance, exam preparation, and independent learning, makes it a valuable educational tool for learners.

The results are consistent with the study of Bower (2021), who found that offline digital learning systems play an essential role in maintaining learning continuity, particularly in areas with limited or unstable internet access. Likewise, Jiang et al. (2021) reported that learners who used offline digital resources demonstrated better learning retention and improved academic performance than those who relied solely on traditional learning materials. These studies support the present findings by highlighting the effectiveness of offline digital libraries in enhancing learners' learning experiences and academic outcomes.

Table 5. Level of Effectiveness of Offline Digital Electronic Library when Taken as a Whole.

ODEL....	Mean	Std. Deviation	Remarks
1. has enabled me to enhance my academic performance.	4.28	.781	Highly Effective
2. gives me adequate resources to better comprehend my lessons.	4.17	.736	Effective
3. makes my schoolwork easier.	4.11	.703	Effective
4. has minimized my use of printed textbooks.	4.20	.788	Effective
5. has helped me upgrade my research and information-seeking skills.	4.13	.913	Effective
6. has enhanced confidence in studying.	4.19	.882	Effective
7. gives me relevant and updated materials for my classes.	4.20	.865	Effective
8. has allowed me to study anytime and anywhere in school grounds.	4.15	.778	Effective
9. assists me in reviewing and preparing for exams.	4.21	.837	Highly Effective
10. gave me access to study materials without needing internet.	4.31	.655	Highly Effective
11. has enhanced my learning experience to be more interactive and enjoyable.	4.24	.771	Highly Effective
12. makes me more focused on my studies.	4.20	.785	Effective
13. ensured learning continuity during network outages.	4.14	.818	Effective
14. has motivated me to upgrade my study routine.	4.19	.768	Effective
15. helped me become more independent in my learning.	4.16	.817	Effective
Total	4.19	0.793	Effective

Legend: Highly Effective = 4.21-5.00; Effective = 3.41-4.20; Moderately Effective= 2.61-3.40; Less Effective=1.81-2.60; Ineffective = 1.00-1.80

Level of Effectiveness of Offline Digital Electronic Library when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed

Table 6 presents the respondents' assessment of the effectiveness of the Offline Digital Electronic Library (ODEL) when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed. The overall mean of 4.05 (SD = 0.554) indicates “Effective”, suggesting that ODEL is generally perceived as an effective learning resource by learners regardless of their background.

When grouped according to age, 16-year-old learners gave the highest rating ($M = 4.46$, $SD = 0.359$), which falls under the highly effective category. Meanwhile, respondents aged 11 to 15 years all rated ODEL's effectiveness as High, with mean scores ranging from 3.57 to 4.19. This suggests that learners across different age groups view ODEL positively, although older learners tend to perceive greater benefits from its use.

In terms of sex, both male ($M = 4.02$) and female ($M = 4.16$) respondents rated ODEL as Highly Effective. Although female learners reported a slightly higher mean score, the results indicate that the platform is equally beneficial to both groups.

When classified according to grade level, Grade 8 learners recorded a Very High rating ($M = 4.24$), while Grades 7, 9, and 10 all rated ODEL's effectiveness as High. These findings suggest that the platform effectively supports learning across all junior high school levels.

With respect to the digital devices accessed at home, learners using smartphones, tablets, laptops, and desktop computers all perceived ODEL to be Highly Effective. Smartphone users obtained the highest mean ($M = 4.13$), indicating that mobile devices provide learners with convenient access to ODEL and its educational resources.

Regarding the type of resources accessed, respondents who primarily used reference materials gave the highest rating ($M = 4.24$), corresponding to a Very High level of effectiveness. In comparison, those who mainly accessed modules, multimedia content, and lecture notes or study guides all rated ODEL as Highly Effective. This finding suggests that learners particularly appreciate the availability of reference materials, which provide additional information and support beyond regular classroom instruction.

Overall, the results show that ODEL is consistently viewed as an effective learning platform across different groups of learners. Regardless of age, sex, grade level, or the type of device and learning resources used, respondents expressed favorable perceptions of its effectiveness. The slightly higher ratings among older learners, Grade 8 learners, and those who frequently accessed reference materials suggest that these groups may derive greater academic benefits from the platform.

These findings are supported by Bower (2021), who emphasized that offline digital learning systems provide reliable access to educational resources and help sustain learning, particularly in environments with limited internet connectivity. Similarly, Rasheed et al. (2020) concluded that accessible and user-friendly digital learning systems are more effective because they encourage learners to use available resources consistently. The present findings reinforce these studies, indicating that ODEL effectively meets learners' educational needs by providing accessible, reliable, and relevant learning materials across different learner groups.

Table 6. Level of Effectiveness of Offline Digital Electronic Library when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed

Variables	Mean	Std. Deviation	Remarks
Age			
11 years old	3.57	1.084	Effective
12 years old	3.82	0.744	Effective
13 years old	4.19	0.578	Effective
14 years old	4.15	0.464	Effective
15 years old	4.14	0.432	Effective
16 years old	4.46	0.359	Highly Effective
Sex			
Male	4.02	0.653	Effective

Female	4.16	0.503	Effective
Grade Level			
Grade 7	3.84	0.703	Effective
Grade 8	4.24	0.595	Highly Effective
Grade 9	4.16	0.390	Effective
Grade 10	4.17	0.443	Effective
Accessed Digital Devices at Home			
Smart Phone	4.13	0.592	Effective
Tablet	4.06	0.396	Effective
Laptop	4.02	0.600	Effective
Desktop	3.60	0.353	Effective
Types of Resources			
Module	4.11	0.622	Effective
Multimedia Content	3.91	0.639	Effective
Reference Material	4.24	0.492	Highly Effective
Lecture Notes and Study Guide	4.10	0.445	Effective
Overall	4.05	0.554	Effective

Legend: Highly Effective = 4.21-5.00; Effective = 3.41-4.20; Moderately Effective= 2.61-3.40; Less Effective=1.81-2.60; Ineffective = 1.00-1.80

Extent of Learners' Engagement in Offline Digital Electronic Library When Taken as a Whole.

Table 7 presents the extent of learners' engagement with the Offline Digital Electronic Library (ODEL). The overall mean of 4.20 (SD = 0.812) indicates that learners are engaged with ODEL to a "Great Extent." This suggests that most learners have attention, interest, and participation in all learning activities.

Among the indicators, "I am motivated to learn when using ODEL" obtained the highest mean ($M = 4.32$, $SD = 0.705$), followed by "I find ODEL resources interesting" and "I feel more focused and productive when using the offline digital electronic library compared to other resources" (both $M = 4.31$). Likewise, respondents rated applying what they learned from ODEL to solve problems and feeling confident when using ODEL (both $M = 4.28$) as to a Very Great Extent. Learners also expressed a strong sense of accomplishment when they were able to locate and use ODEL resources successfully ($M = 4.21$). These findings indicate that ODEL not only captures learners' interest but also strengthens their confidence, motivation, and ability to apply what they learn.

The remaining indicators were all rated "To a Great Extent", with mean scores ranging from 4.06 to 4.18. Respondents reported actively participating in ODEL activities, enjoying the variety of learning materials, taking notes, checking for new resources, connecting new information with prior knowledge, and spending time exploring the platform. They also agreed that ODEL helped them remember information and made learning more enjoyable. These consistently high ratings show that learners are actively involved in different aspects of learning while using ODEL.

Overall, the findings suggest that ODEL promotes behavioral, cognitive, and emotional engagement among learners. By providing accessible and relevant learning resources, the platform encourages learners to participate actively, stay motivated, and become more focused and confident in their studies.

These findings support the study of Yu et al. (2022), which reported that regular use of digital libraries increases learners' motivation, engagement, and academic performance. Similarly, Rajabalee et al. (2020) found that accessible and well-organized digital libraries encourage active participation and sustained learner engagement. The present study reflects these findings, demonstrating that ODEL serves as an effective learning platform that motivates learners and fosters meaningful engagement in their learning activities.

Table 7. *Extent of Learners' Engagement in Offline Digital Electronic Library When Taken as a Whole.*

<i>As a learner...</i>	Mean	Std. Deviation	Remarks
1. I actively participate in ODEL Activities.	4.17	.766	To a Great Extent
2. enjoy browsing through the variety of learning materials provided by ODEL.	4.18	.794	To a Great Extent
3. take notes while using ODEL resources.	4.10	.869	To a Great Extent
4. regularly check for new materials on ODEL.	4.06	.955	To a Great Extent
5. spend a significant amount of time engaging with resources in the offline digital electronic library.	4.10	1.029	To a Great Extent
6. can easily remember information from ODEL materials.	4.08	.946	To a Great Extent
7. connect ODEL content with my previous knowledge.	4.17	.724	To a Great Extent
8. feel a sense of accomplishment when I can locate and use resources from the digital library successfully.	4.21	.708	To a Very Great Extent
9. apply what I learn from ODEL to solve problems.	4.28	.718	To a Very Great Extent
10. using and engaged more deeply with my studies.	4.25	.755	To a Very Great Extent
11. enjoy using ODEL for learning.	4.16	.825	To a Great Extent
12. feel confident when using ODEL.	4.28	.835	To a Very Great Extent
13. am motivated to learn when using ODEL.	4.32	.705	To a Very Great Extent
14. find ODEL resources interesting.	4.31	.729	To a Very Great Extent
15. feel more focused and productive when using the offline digital electronic library compared to other resources.	4.31	.826	To a Very Great Extent
Total	4.20	0.812	To a Great Extent

Legend: To a Very Great Extent = 4.21-5.00; To a Great Extent = 3.41-4.20; To a Moderate Extent = 2.61-3.40; To a Low Extent = 1.81-2.60; To a Very Low Extent = 1.00-1.80

Extent of Learners' Engagement in Offline Digital Electronic Library when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed

Table 8 presents the extent of learners' engagement with the Offline Digital Electronic Library (ODEL) when classified according to age, sex, grade level, accessibility of digital devices at home, and the type of resources accessed. The overall mean of 4.05 (SD = 0.609) indicates that learners are engaged with ODEL to a Great Extent. This suggests that the platform effectively encourages learners to participate in learning activities regardless of their personal or academic profile.

When grouped according to age, 16-year-old learners recorded the highest level of engagement ($M = 4.41$), followed by 14-year-old learners ($M = 4.21$), both interpreted as to a Very Great Extent. Meanwhile, learners aged 11, 12, 13, and 15 years all reported engagement "To a Great Extent". These findings suggest that while learners across all age groups are actively engaged, older learners tend to demonstrate slightly stronger involvement in using ODEL.

In terms of sex, both male ($M = 3.97$) and female ($M = 4.17$) respondents reported engagement to a Great Extent. Although female learners obtained a slightly higher mean, the results indicate that ODEL effectively engages learners regardless of sex.

Across grade levels, all respondents rated their engagement "To a Great Extent", with Grade 9 learners obtaining the highest mean ($M = 4.20$), followed closely by Grade 8 ($M = 4.19$), Grade 10 ($M = 4.09$), and Grade 7 ($M = 3.89$). This shows that learners from all junior high school levels actively engage with the platform.

With respect to the digital devices accessed at home, respondents who used smartphones reported the highest level of engagement ($M = 4.12$), followed by laptops ($M = 4.03$), tablets ($M = 3.97$), and desktop computers ($M = 3.62$). All groups were interpreted as engaged "To a Great Extent", indicating that ODEL remains accessible and useful regardless of the device available to learners.

Regarding the type of resources accessed, learners who frequently used reference materials reported the highest level of engagement ($M = 4.24$), corresponding to a Very Great Extent. In contrast, those who primarily

accessed modules, multimedia content, and lecture notes and study guides all rated their engagement “To a Great Extent”. This finding suggests that reference materials may encourage learners to become more actively involved in independent learning and information seeking.

Overall, the findings indicate that ODEL consistently promotes learner engagement across different groups of learners. Although slight differences were observed among age groups and resource preferences, the generally high ratings demonstrate that the platform encourages active participation, sustained interest, and meaningful interaction with learning materials.

These findings are consistent with Yu et al. (2022), who reported that regular access to digital library resources enhances learners' motivation and engagement. Likewise, Ong and Gumasing (2023) found that flexible digital learning platforms increase learners' participation by allowing them to access learning materials at their own pace. The present findings reinforce these studies, suggesting that ODEL provides an accessible and learner-centered environment that supports active engagement across a diverse group of learners.

Table 8. Extent of Learners' Engagement in Offline Digital Electronic Library when classified according to age, sex, grade level, accessibility of digital devices at home, and type of resources accessed

Variables	Mean	Std. Deviation	Remarks
Age			
11 years old	3.57	.896	To a Great Extent
12 years old	3.86	.735	To a Great Extent
13 years old	4.14	.592	To a Great Extent
14 years old	4.21	.611	To a Very Great Extent
15 years old	4.05	.532	To a Great Extent
16 years old	4.41	.368	To a Very Great Extent
Sex			
Male	3.97	.711	To a Great Extent
Female	4.17	.530	To a Great Extent
Grade Level			
Grade 7	3.89	.696	To a Great Extent
Grade 8	4.19	.644	To a Great Extent
Grade 9	4.20	.533	To a Great Extent
Grade 10	4.09	.541	To a Great Extent
Accessed Digital Devices at Home			
Smart Phone	4.12	.614	To a Great Extent
Tablet	3.97	.646	To a Great Extent
Laptop	4.03	.648	To a Great Extent
Desktop	3.62	.269	To a Great Extent
Types of Resources			
Module	4.08	.606	To a Great Extent
Multimedia Content	3.99	.733	To a Great Extent
Reference Material	4.24	.637	To a Very Great Extent
Lecture Notes and Study Guide	4.09	.632	To a Great Extent
Overall	4.05	0.609	To a Great Extent

Legend: To a Very Great Extent = 4.21-5.00; To a Great Extent = 3.41-4.20; To a Moderate Extent = 2.61-3.40; To a Low Extent = 1.81-2.60; To a Very Low Extent = 1.00-1.80

Differences in the extent of utilization of ODEL among learners when classified according to sex.

Table 9 presents the difference in the extent of learners' utilization of the Offline Digital Electronic Library (ODEL) when classified according to sex. The results show that female learners obtained a higher mean score ($M = 4.25$) than male learners ($M = 4.13$). The computed t -value of -2.276 with a p -value of 0.024 is less than the 0.05 level of significance. Therefore, the null hypothesis is rejected, indicating a significant difference in the extent of ODEL utilization between male and female learners.

This finding suggests that female learners tend to utilize ODEL more frequently than their male counterparts. Although both groups reported high levels of utilization, female learners demonstrated a greater tendency to use the platform for their learning activities. The difference may be associated with variations in study habits, learning preferences, or the amount of time devoted to academic tasks. However, these factors were not specifically examined in the present study.

The findings are consistent with the study of Rajabalee et al. (2020), which emphasized that learners' engagement with digital libraries is influenced by how accessible and useful they perceive the platform to be. The higher utilization among female learners suggests that they may be more inclined to maximize the educational resources available through ODEL. Regardless of the observed difference, both male and female learners reported utilizing ODEL to a great extent, highlighting its value as a learning resource for all learners.

Table 9. *Differences in the extent of utilization of ODEL among learners when classified according to sex.*

Variables	Mean	t-test	p-value	Remarks
Sex				
Male	4.13	-2.276	0.024	Significant
Female	4.25			

Note: $p\text{-value} \leq 0.05$ "Significant"; $p\text{-value} > 0.05$ "Not significant"

Differences in the extent of utilization of ODEL among learners when classified according to age, grade level, accessibility of digital devices at home, and type of resources accessed.

Table 10 presents the differences in the extent of learners' utilization of the Offline Digital Electronic Library (ODEL) when classified according to age, grade level, accessibility of digital devices at home, and type of resources accessed.

The results show a significant difference in the extent of ODEL utilization when respondents were grouped according to age ($F = 8.270$, $p = .000$) and grade level ($F = 12.203$, $p = .000$). Since the computed p -values are less than the 0.05 level of significance, the null hypothesis is rejected. This indicates that learners' utilization of ODEL varies significantly across different age groups and grade levels. Among the age groups, 16-year-old learners recorded the highest mean ($M = 4.54$), while Grade 9 learners obtained the highest mean ($M = 4.35$) among the grade levels. These findings suggest that older learners and those in higher grade levels tend to utilize ODEL more frequently, possibly because they encounter more complex academic requirements that encourage greater use of digital learning resources.

On the other hand, no significant differences were found when respondents were classified according to accessibility of digital devices at home ($F = 1.538$, $p = .204$) and type of resources accessed ($F = 1.457$, $p = .226$). Since both p -values are greater than 0.05 , the null hypothesis is accepted. This indicates that learners' utilization of ODEL does not significantly differ based on the type of device they use or the learning resources they access. Regardless of whether learners use smartphones, tablets, laptops, or desktop computers, and regardless of the resource type they access, they tend to utilize ODEL at a similar level.

Overall, the findings suggest that learners' age and grade level influence how frequently they utilize ODEL, while device accessibility and preferred learning resources do not appear to affect its utilization. This implies that ODEL is accessible and beneficial to learners regardless of the technology available to them or the type of educational materials they use.

These findings are supported by Lucero et al. (2022), who emphasized that learners' readiness and educational level influence how they utilize digital learning platforms. Similarly, Granić and Marangunić (2024)

explained that learners are more likely to use educational technologies when they perceive them as useful and easy to use, regardless of the specific device used to access them. The present findings reinforce these studies, suggesting that while learner characteristics such as age and grade level may influence utilization, ODEL remains an accessible and effective learning platform across different devices and learning resources.

Table 10. *Differences in the extent of utilization of ODEL among learners when classified according to age, grade level, accessibility of digital devices at home, and type of resources accessed.*

Variables	Mean	F-value	p-value	Remarks
Age				
11 years old	4.04			
12 years old	3.95			
13 years old	4.24	8.270	.000	Significant
14 years old	4.37			
15 years old	4.17			
16 years old	4.54			
Grade Level				
Grade 7	3.98			
Grade 8	4.31	12.203	.000	Significant
Grade 9	4.35			
Grade 10	4.22			
Accessed Digital Devices at Home				
Smart Phone	4.21			
Tablet	4.29	1.538	.204	Not Significant
Laptop	4.12			
Desktop	3.88			
Types of Resources				
Module	4.18			
Multimedia Content	4.14	1.457	.226	Not Significant
Reference Material	4.40			
Lecture Notes and Study Guide	4.21			

Note: p-value $\leq$ 0.05 “Significant”; p-value $>$ 0.05 “Not significant”

Differences in the level of effectiveness of ODEL as assessed by the respondents when classified according to sex.

Table 11 presents the difference in the perceived effectiveness of the Offline Digital Electronic Library (ODEL) when respondents are classified according to sex. The results show that female learners obtained a slightly higher mean score ($M = 4.16$) than male learners ($M = 4.02$). The computed t-value of -2.229 and p-value of 0.027 indicate a statistically significant difference since the p-value is less than the 0.05 level of significance. Therefore, the null hypothesis is rejected.

This finding indicates that male and female learners differ in how they perceive the effectiveness of ODEL. Although both groups rated the platform as highly effective, female learners viewed ODEL as slightly

more effective than male learners. This may suggest that female learners perceive greater benefits from the platform in supporting their learning, enhancing their understanding of lessons, and improving their overall academic experience. However, the difference is relatively small, indicating that ODEL is generally regarded as an effective learning resource by both groups.

The findings are consistent with the study of Granić and Marangunić (2024), who reported that learners' perceptions of the usefulness of educational technology influence how they evaluate and adopt digital learning systems. When learners recognize the educational value of a platform, they are more likely to perceive it as effective and integrate it into their learning. Similarly, the high ratings from both male and female learners in the present study suggest that ODEL effectively supports learners' academic needs, despite the significant difference observed between the two groups.

Table 11. *Differences in the level of effectiveness of ODEL as assessed by the respondents when classified according to sex.*

Variables	Mean	t-test	p-value	Remarks
Sex				
Male	4.02	-2.229	0.027	Significant
Female	4.16			

Note: $p\text{-value} \leq 0.05$ "Significant"; $p\text{-value} > 0.05$ "Not significant"

Differences in the level of effectiveness of ODEL as assessed by the respondents when classified according to age, grade level, accessibility of digital devices at home, and type of resources accessed

Table 12 presents learners' ratings of the effectiveness of the Offline Digital Electronic Library (ODEL) segmented by age, grade level, digital device access, and resource type. The data indicates significant variances in perception based on age ($F = 5.736$, $p = .000$) and grade level ($F = 9.655$, $p = .000$), leading to the rejection of the null hypothesis. Sixteen-year-olds rated ODEL highest ($M = 4.46$), while Grade 8 learners averaged 4.24, suggesting older and certain grade learners find ODEL more beneficial, likely due to increased usage for academics.

Conversely, no significant differences emerged regarding device access ($F = 1.398$, $p = .243$) and resource type ($F = 1.295$, $p = .276$), allowing the acceptance of the null hypothesis in these categories. This finding indicates that learners had similar views on ODEL's effectiveness, irrespective of whether they used smartphones, tablets, laptops, or desktop computers, or engaged with different materials like modules, multimedia content, or notes.

In summary, age and grade level strongly influence perceptions of ODEL's effectiveness, whereas device and resource type do not. This underscores the platform's capacity to effectively aid diverse learners, echoed by Granić and Marangunić (2024) and Bower (2021), highlighting the importance of learners' perceptions of educational technology and its equitable access to resources.

Table 12. *Differences in the level of effectiveness of ODEL as assessed by the respondents when classified according to age, grade level, accessibility of digital devices at home, and type of resources accessed*

Variables	Mean	F-value	p-value	Remarks
Age				
11 years old	3.57	5.736	.000	Significant
12 years old	3.82			
13 years old	4.19			
14 years old	4.15			
15 years old	4.14			
16 years old	4.46			

Grade Level				
Grade 7	3.84			
Grade 8	4.24			
Grade 9	4.16	9.655	.000	Significant
Grade 10	4.17			
Accessed Digital Devices at Home				
Smart Phone	4.13			
Tablet	4.06	1.398	.243	Not Significant
Laptop	4.02			
Desktop	3.60			
Types of Resources				
Module	4.11			
Multimedia Content	3.91			
Reference Material	4.24	1.295	.276	Not Significant
Lecture Notes and Study Guide	4.10			

Note: p-value $\leq$ 0.05 “Significant”; p-value $>$ 0.05 “Not significant”

Differences in the extent of learners' engagement when classified according to sex.

Table 13 presents the differences in the extent of learners' engagement with the Offline Digital Electronic Library (ODEL) when classified according to sex. The results show that female learners obtained a higher mean score ($M = 4.17$) than male learners ($M = 3.97$). The computed t-value of -2.938 and p-value of 0.004 indicate a statistically significant difference since the p-value is less than the 0.05 level of significance. Therefore, the null hypothesis is rejected.

The findings indicate that learners' engagement with ODEL differs according to sex. Although both male and female learners reported being engaged with the platform to a great extent, female learners demonstrated a higher level of engagement. This suggests that female learners may participate more actively in ODEL activities, spend more time exploring its learning resources, and make greater use of the platform to support their studies. Nevertheless, the results also show that ODEL effectively promotes learner engagement among both groups.

These findings are consistent with Yu et al. (2022), who found that regular use of digital libraries enhances learners' motivation and engagement by providing accessible and meaningful learning resources. Likewise, Ong and Gumasing (2023) emphasized that flexible digital learning platforms encourage greater learner participation by allowing learners to access educational materials at their own pace. The present findings reinforce these studies, suggesting that ODEL provides an engaging learning environment for all learners, while female learners exhibit a slightly higher level of engagement with the platform.

Table 13. Differences in the extent of learners' engagement when classified according to sex.

Variables	Mean	t-test	p-value	Remarks
Sex				
Male	3.97			
Female	4.17	-2.938	0.004	Significant

Note: p-value $\leq$ 0.05 “Significant”; p-value $>$ 0.05 “Not significant”

Differences in the extent of learners' engagement when classified according to age, grade level, accessibility of digital devices at home, and type of resources accessed.

Table 14 presents the differences in the extent of learners' engagement with the Offline Digital Electronic Library (ODEL) when classified according to age, grade level, accessibility of digital devices at home, and type of resources accessed.

The findings revealed a significant difference in learners' engagement when respondents were grouped according to age ($F = 3.810$, $p = .002$) and grade level ($F = 5.074$, $p = .002$). Since both p-values are less than the 0.05 level of significance, the null hypothesis is rejected. This indicates that learners' engagement with ODEL varies across different age groups and grade levels. Among the age groups, 16-year-old learners recorded the highest mean score ($M = 4.41$), while Grade 9 learners obtained the highest mean ($M = 4.20$) among the grade levels. These findings suggest that older learners and those in higher grade levels tend to be more engaged with ODEL, possibly because they face greater academic demands and make more frequent use of the platform to support their learning.

In contrast, no significant differences were found when learners were grouped according to accessibility of digital devices at home ($F = 1.339$, $p = .261$) and type of resources accessed ($F = 0.656$, $p = .580$). Since the computed p-values are greater than the 0.05 level of significance, the null hypothesis is accepted. This means that learners' level of engagement does not significantly vary based on the type of device they use or the learning resources they access. Regardless of whether learners used smartphones, tablets, laptops, or desktop computers, or whether they accessed modules, multimedia content, reference materials, or lecture notes, they remained similarly engaged with ODEL.

Overall, the results suggest that learners' engagement is influenced by their age and grade level but remains consistent across different devices and learning resources. This indicates that ODEL provides an inclusive learning environment that effectively engages learners regardless of the technology available to them or the type of educational materials they use.

The findings are supported by Yu et al. (2022), who found that regular use of digital libraries enhances learners' motivation and engagement, particularly as academic demands increase. Similarly, Ong and Gumasing (2023) reported that flexible digital learning platforms promote active participation by allowing learners to access educational materials according to their own learning needs and pace. These studies reinforce the present findings, highlighting that while learner characteristics such as age and grade level may influence engagement, ODEL remains an effective platform for fostering meaningful learning across diverse groups of learners.

Table 14. *Differences in the extent of learners' engagement when classified according to age, grade level, accessibility of digital devices at home, and type of resources accessed.*

Variables	Mean	F-value	p-value	Remarks
Age				
11 years old	3.57	3.810	.002	Significant
12 years old	3.86			
13 years old	4.14			
14 years old	4.21			
15 years old	4.05			
16 years old	4.41			
Grade Level				
Grade 7	3.89	5.074	.002	Significant
Grade 8	4.19			
Grade 9	4.20			
Grade 10	4.09			

Accessed Digital Devices at Home

Smart Phone	4.12			
Tablet	3.97	1.339	.261	Not Significant
Laptop	4.03			
Desktop	3.62			

Types of Resources

Module	4.08			
Multimedia Content	3.99			
Reference Material	4.24	0.656	.580	Not Significant
Lecture Notes and Study Guide	4.09			

Note: p-value $\leq$ 0.05 “Significant”; p-value $>$ 0.05 “Not significant”

Utilization and effectiveness of the Offline Digital Electronic (ODEL) significantly influence to learners' engagement.

Table 15 presents the results of the multiple regression analysis determining whether the extent of utilization and level of effectiveness of the Offline Digital Electronic Library (ODEL) significantly influence learners' engagement.

The results show a multiple correlation coefficient (R) of 0.792, indicating a strong positive relationship between the independent variables (extent of utilization and level of effectiveness of ODEL) and learners' engagement. The coefficient of determination (R^2) of 0.628 reveals that 62.8% of the variation in learners' engagement can be explained by the combined influence of ODEL utilization and effectiveness. The remaining 37.2% may be attributed to other factors not included in the study.

The regression model was found to be statistically significant ($F = 294.965$, $p = .000$), indicating that the combined effect of ODEL utilization and effectiveness significantly predicts learners' engagement. Therefore, the null hypothesis is rejected, confirming that these variables have a significant influence on learners' engagement.

When the individual predictors were examined, both variables were found to have a significant positive influence on learners' engagement. The level of effectiveness of ODEL emerged as the stronger predictor ($\beta = 0.577$, $t = 11.545$, $p = .000$), indicating that learners who perceived ODEL as more effective also demonstrated higher levels of engagement. Meanwhile, the extent of utilization of ODEL also had a significant positive effect ($\beta = 0.260$, $t = 5.196$, $p = .000$), suggesting that frequent use of the platform contributes to greater learner engagement.

Overall, the findings indicate that both the extent to which learners use ODEL and how effective they perceive it to be play important roles in promoting learner engagement. However, learners' perception of ODEL's effectiveness has a greater influence than the frequency of its use. This implies that simply encouraging learners to use the platform is not enough; ensuring that ODEL provides relevant, accessible, and meaningful learning experiences is equally important in fostering active engagement.

These findings are consistent with Rajabalee et al. (2020), who found that well-organized and accessible digital libraries significantly improve learners' utilization and engagement. Likewise, Yu et al. (2022) reported that learners who perceive digital learning resources as useful and effective are more motivated and actively engaged in learning. The present study supports these findings by demonstrating that both the utilization and perceived effectiveness of ODEL significantly contribute to enhancing learners' engagement, with perceived effectiveness having the strongest influence.

Table 15. *Utilization and effectiveness of the Offline Digital Electronic (ODEL) significantly influence to learners' engagement.*

Variables	Multiple R	R ²	R ² change	F	Sig. F	SE B	β	t	p-value
Extent Utilization of ODEL	0.792	0.628	0.628	294.965	0.000	0.065	0.260	5.196	0.000
Level of Effectiveness of ODEL	0.792	0.628	0.628	294.965	0.000	0.054	0.577	11.545	0.000

Finding of the Study

In this study, the findings were the following:

1. The respondents were predominantly junior high school learners, with the largest proportion belonging to the 13-year-old age group (28.0%). Female learners comprised a slightly higher proportion of the participants (56.4%) compared to male learners (43.6%). The distribution across grade levels showed representation from Grades 7 to 10, indicating that the findings reflect the experiences of learners across different stages of junior high school. In terms of technological accessibility, smartphones were identified as the primary digital device available at home (72.5%), while modules were the most accessed learning resource (61.8%). This suggests that learners' engagement with ODEL is largely influenced by mobile accessibility and curriculum-aligned digital materials.
2. The findings revealed that learners utilized ODEL "To a Great Extent" ($M = 4.20$, $SD = 0.790$). The results indicate that learners regularly accessed ODEL for studying, completing academic requirements, reviewing lessons, and obtaining additional learning resources. Higher utilization was observed among older learners, female respondents, higher grade levels, and those accessing reference materials. These findings suggest that ODEL has become a meaningful supplementary learning resource that supports independent learning and provides learners with opportunities to access educational materials beyond traditional classroom instruction.
3. The respondents assessed ODEL as "Effective" ($M = 4.05$, $SD = 0.554$). Learners recognized its contribution to improving access to learning materials, supporting academic tasks, enhancing independent learning, and providing learning continuity despite limitations in internet connectivity. The results indicate that ODEL serves not only as a repository of digital materials but also as a learning support system that responds to the changing needs of learners in technology-supported educational environments.
4. The findings showed that learners were engaged with ODEL "To a Great Extent" ($M = 4.05$, $SD = 0.609$). Learners demonstrated active participation through exploring resources, applying information obtained from ODEL, developing confidence in learning, and becoming more motivated to study. This indicates that ODEL contributes to behavioral, cognitive, and affective dimensions of learner engagement by providing accessible and meaningful learning experiences.
5. The findings revealed significant differences in ODEL utilization according to sex, age, and grade level. Female learners demonstrated higher utilization than male learners, while older learners and learners from higher grade levels tended to utilize ODEL more frequently. However, utilization did not significantly differ according to accessibility of digital devices at home and type of resources accessed. This implies that ODEL utilization is influenced more by learner characteristics than by the specific technology or materials available.
6. Significant differences were found in learners' assessment of ODEL effectiveness according to sex, age, and grade level. Older learners and specific grade-level groups perceived greater effectiveness of ODEL. Meanwhile, accessibility of digital devices and type of resources accessed did not produce significant differences, suggesting that the effectiveness of ODEL is consistently recognized regardless of learners' available technology and resource preferences.

7. The findings showed significant differences in learner engagement according to sex, age, and grade level. Female learners, older learners, and learners from higher grade levels demonstrated higher engagement with ODEL. However, engagement did not significantly differ based on digital device accessibility and type of resources accessed. This indicates that ODEL has the capacity to foster learner engagement across diverse technological circumstances.
8. The regression analysis revealed that both ODEL utilization and effectiveness significantly influence learners' engagement. The model explained 62.8% of the variance in learner engagement, indicating a strong predictive relationship among the variables. Among the predictors, perceived effectiveness of ODEL demonstrated a stronger influence ($\beta = 0.577$) compared with utilization ($\beta = 0.260$). This finding highlights that learners' engagement is shaped not only by how frequently they use ODEL but also by their perception that the platform provides valuable, accessible, and meaningful learning support.

CONCLUSION

Based on the findings of the study, the following conclusions were drawn:

1. The respondents were junior high school learners aged 13 to 15 years, with a slightly higher proportion of female learners. Most learners accessed the Offline Digital Electronic Library (ODEL) through smartphones and primarily used learning modules. This shows that mobile devices, like smartphones, are still the way for learners to access digital learning materials. This also reflects the importance of curriculum-based instructional materials in supporting learners' learning.
2. Learners utilized ODEL "To A Great Extent", showing that most of the learners consistently and effectively use the ODEL in their learning engagement. Learners regularly used ODEL to access instructional materials, review lessons, prepare for assessments, and obtain additional learning resources. These findings indicate that ODEL has been successfully serving as a reliable source of academic support.
3. ODEL was perceived as "Effective", indicating to fully met the intended outcomes most of the time in supporting learners' academic needs. The platform helps learners to access learning materials without internet connectivity, improve their understanding of lessons, strengthen their study habits, and promote independent learning. The results shows that ODEL effectively addresses learning challenges learners face with limited internet access.
4. Learners demonstrated engagement with ODEL "To A Great Extent", indicating that most of the learners have attention, interest, and participation in all learning activities. The results suggest that providing accessible and relevant digital learning resources contributes to positive learning experiences and promotes meaningful learner engagement.
5. Significant differences in the extent of utilization of ODEL are observed when learners are grouped according to age and grade level, while no significant differences are found when classified according to sex, accessibility of digital devices at home, and type of resources accessed.
6. Significant differences in the level of effectiveness of ODEL are observed when learners are grouped according to age and grade level, while no significant differences are found when classified according to sex, accessibility of digital devices at home, and type of resources accessed.
7. Significant differences in learners' engagement are observed when classified according to age and grade level, while no significant differences are found when classified according to sex, accessibility of digital devices at home, and type of resources accessed.
8. The utilization and effectiveness of the Offline Digital Electronic Library (ODEL) significantly influence learners' engagement, with effectiveness identified as the stronger predictor of engagement compared to utilization.

Recommendation

The following recommendations were based on the foregoing findings and conclusions by the researcher:

1. School administrators may continue strengthening the implementation of ODEL by ensuring that its collection of digital learning resources remains updated, curriculum-aligned, and responsive to learners' educational needs. Continuous monitoring and evaluation of the platform may also help sustain its effectiveness.
2. Teachers may be encouraged to integrate ODEL more consistently into classroom instruction by designing learning activities that promote inquiry, collaboration, and independent learning. They may also provide guidance on effectively utilizing the platform so that learners can maximize its educational benefits.
3. Learners may be encouraged to use ODEL regularly not only for completing assignments but also for self-directed learning, research, lesson enrichment, and examination preparation. Developing the habit of exploring a variety of digital resources may further strengthen their academic performance and lifelong learning skills.
4. Parents and guardians may support their children's use of ODEL by encouraging regular study routines at home and providing opportunities for learners to utilize available digital devices responsibly for educational purposes.
5. The Department of Education and school policymakers may consider expanding the implementation of Offline Digital Electronic Libraries in schools, particularly in geographically isolated and disadvantaged communities where internet connectivity remains a challenge. Providing technical support, teacher training, and continuous resource development can further enhance the sustainability and effectiveness of the program.
6. Since the findings revealed that the perceived effectiveness of ODEL has the strongest influence on learner engagement, schools should prioritize improving the quality, organization, usability, and relevance of the platform's learning resources. Enhancing learners' overall experience with ODEL may encourage more meaningful and sustained engagement.
7. Future researchers may be encouraged to replicate this study in different educational settings and include additional variables such as academic achievement, digital literacy, learning motivation, self-regulated learning, teacher readiness, and technology acceptance. Employing mixed-methods or longitudinal research designs may also provide deeper insights into how offline digital learning systems influence learners over time.

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