

# Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions

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## Abstract

Online learning and knowledge sharing are now the trends in an educational setting. Educational online learning will fill the gap in getting the necessary knowledge about financial literacy. Students are encouraged to be financially literate to appreciate their purpose in life. The study focused on website development and evaluation for Higher Education Institutions' students to appreciate and internalize the value of financial literacy, including saving, spending, and investing. The experimental research was utilized and focused on the processes involved in developing the system. This study employed data analysis, online data gathering and used website validation, evaluation performance, and website deployment. A total of 145 respondents evaluated the web application. Results showed that all the pages passed the required tests. Further, the website's performance evaluation is based on the Website Evaluation Questionnaire (WEQ) criteria through randomly sampled respondents and obtained a numerical rating of 4.07, which exceeded expectations in descriptive terms. Therefore, the developed website could serve as a helpful tool in learning financial literacy.

**Keywords**— Information and communication technology, financial literacy, web-based, learning application, savings, proper spending, investing

## I. INTRODUCTION

Financial education remains a significant challenge in the global arena because financial crises affect the national economy. Moreover, global financial literacy confirmed poor economic behavior affects individuals and the global economy across developed and developing countries [1].

Financial literacy is essential because it influences people to save, borrow, invest, and manage their financial affairs. It helps to improve the quality of financial service and contribute to economic growth and development [2]. Financial education and behavioral intervention are crucial in shaping good money management skills [3]. Learning plays a vital role in establishing student financial literacy through teaching methods, media, and learning resources planned under a competency that provides skills in finance [4].

The State recognizes the country's growth and potential through financially literate people who make sound financial decisions, mobilize savings, and contribute ideas on improving economic and monetary policies and programs. Financial literacy plays a vital role in financial decision-making that helps financially literate people better plan retirement [5]. However, the Organization for Economic Co-operation and Development surveys, 30 countries' financial literacy levels are low in financial knowledge, financial attitude, and financial behavior [6]. The educational programs and testing tools are important to upgrade the financial market, learn to manage personal finances, and choose financial services effectively. People's lives experience financial loss due to extravagant spending and consumption, unwise use of money. Financial capability is related to their ability to manage money [7]. The Philippine government

developed a control measure to optimize improving financial literacy. The RA No. 10922, an act, declares the State's policy to create national consciousness on economic and financial literacy by announcing the second week of November of every year as "Economic and Financial Literacy Week."

Students should be exposed to money and financial decision-making. The digital natives of today's generation and generation Z strive to be financially savvy. Understanding Generation Z financial literacy significantly influences their gender [8]. Digital financial literacy is emerging as a key enabler involving a set of knowledge, awareness, and abilities, including aspects of financial literacy and digital literacy [9]. Financial attitudes affect financial behavior and can mediate the influence of financial knowledge on financial behavior, which forms good intentions in the finances of individual behavior [10]. People must have the financial literacy to manage their personal finance well [2].

Students face a complicated financial decision in spending their money and allowances, especially today that online shopping is the trend, attracting people to increase more than usual. Students are advised to continue to improve their financial literacy to improve financial management that can lead to investment [11]. Financial literacy will make the individual more selective in financial decision-making. There is a need and benefit of improving financial literacy to make individuals less financially fragile [12]. It positively influences savings decisions [13], and it is essential to understand the relationship between financial behavior and decision-making [14].

We can't blame our income for our financial problems because its primary cause is the absence of financial literacy, which causes issues in financial management such as financial planning and misuse of credit [15]. The limited knowledge about financial literacy may lead the students to become involved in financial problems during school life, which significantly affects their present and future family and professional life. The emergence of

financial issues is not only due to a low level of income but can also come from a person's lack of knowledge in managing their finances [4]. Many people do not understand finance, so they cannot manage finances properly [16].

There is a need to improve students' financial skills because most parents suffer from economic challenges, loans, debt, and financial illiteracy. Because of that, financial education is one promising way to improve the financial capacity of students. Literacy helps an individual's knowledge and expertise towards finance and shapes a financial attitude towards money, behavior, financial planning, and ability to control their finances [17]. A financial literacy model is needed for financial education, and it is essential to understand the educational impact and barriers to effective financial choice [18]. The faculty has a role in providing proper skills and knowledge on managing students' financial resources effectively for financial security and developing supplementary materials for students to help them manage their finances. The paper provides information that financial literacy is the relevance of art-based instruction to social education and financial education affecting teachers [19].

Technological developments influence education, the development of online learning or e-learning has significant developments on financial management [20]. The development of web-based application play a vital role in providing financial knowledge that is interactive and flexible. The study aims to develop a web-based learning tool for students of Higher Education Institutions and improve the financial literacy of tertiary students, specifically those beneficiaries of the government allowance program. This application would be a great help for the students to be financially literate to help solve financial capability by using available technology. E-learning and financial literacy are currently running, and lifestyle significantly affects financial literacy [20]. The system will serve as a good platform for providing valuable and educational information to the

students. The system can provide lessons, videos, webinars, and activities.

Furthermore, this study aims to provide a more profound understanding of money and its use in daily life. It includes how income and expenditure are managed and the ability to use the standard methods of exchanging and managing money. Lastly, financial literacy consists of understanding everyday situations that need to be understood, such as credit and appreciation of savings and borrowings and investing.

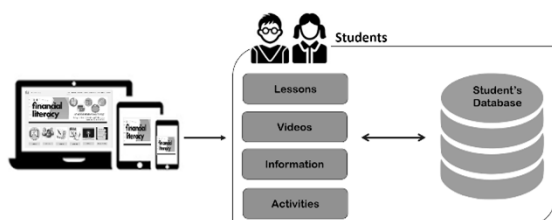
The study developed and evaluated the Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions. Specifically, the study aims to achieve the following objectives:

1. Develop an appropriate Web-based Learning Application for Financial Literacy with informative digital materials, supplementary Learning Material, and open communication.
2. Test and improve the developed website based on Website Evaluation Questionnaire (WEQ) standards, and
3. Evaluate the performance of the developed Web-based Learning Application for Financial Literacy in terms of ease of use, hyperlinks, structure, relevance, comprehension, completeness, layout, and search option.

## II. METHODS

### *System Architecture*

The system's architectural design is shown in Figure 1, which describes the system's overall structure and how the significant components interact.



*Fig. 1. The architecture of the Financial Literacy Web-based Learning Application Tool*

In this system, the users are the students or Higher Education Institutions. The user submits information online, and then the system saves it on the database. Online login is needed to monitor the students using the system. The admin provides all the necessary resources for the user. The proposed system aims to identify the students' level of knowledge and provide better intervention. The researchers developed a web-based system that uses cloud computing. Various Google applications were utilized as a service provider and for the overall presentation of the system functions. Utilized the Google Chart to display the number of users while Google Calendar was for date and time. There are two primary users of the system. The regular users are the teachers who are responsible for the updating of lessons. Each teacher user has an account that the admin created. The admin and user have a separate system interface. Some of the functions in the user's pages are similar except for the admin, which holds complete access to the system's features.

### *The System Components*

The system aims to provide helpful information and insights about financial literacy. These will guide them in seeking information about financial literacy, money, proper spending, savings, and investing. The web-based system uses cloud computing, and Google applications were utilized as a service provider for the system. The use of a client and server framework holds the database and uses MySQL as its server scripting language. The client is any computer that accesses the internet. The primary users of the system are the students and teachers who are authorized to use the system. The system requires them to input their information to the Sign-up page for monitoring purposes. The website has four major components, specifically, the "Lessons," the "Videos," the "Activities," and the "Information." The "Lessons" contains related information about financial literacy education, money, earning, proper spending, and investing. It is based on the available resources online.

The "Videos" are combinations of animations, motion graphic videos, screencast videos, and live-action screencasts. The "Activities" is the practice assessment for students to help them assess their capabilities and skills. The website can generate specific results provided the users choose from the given options, and the changes made by the user will only apply until the user logs out or closes the browser.

A financial literacy application is a web-based application accessible to students and faculty interested in learning and gaining knowledge about financial learning.

### *Project Development*

The proponents deliver the project by the following standard development life cycle program. The study used the System Development Life Cycle model for project development. The process consists of the following steps: Analysis, Designing, Coding, Testing, and Implementation of the output project.

The analysis gathers needed data from students about saving money, spending their parents' allowances, and prioritizing spending their money. The accuracy of data and information for the system is necessary to meet the project set objectives. The proponents utilized interviews, surveys, and reading-related materials, the essential processes to gather crucial input requirements to gain the project set goals. The designing stage includes Context Diagram, and a storyboard is used as a guide in developing all the features required by the system. These served as the basis for the number of forms or windows that the plan contained. The coding involved designing and coding the website.

The proponents browse the internet, research-related information, and search for the codes and designs from the internet and libraries for the physical and logical structure. The Hypertext Preprocessor (PHP) is the scripting language used in coding the web-based application. During the development of the system (Development of a Web-based Application), the website undergoes a series of

testing procedures and is evaluated by experts and end-users. An open-ended evaluation of the system was utilized and answered to get pertinent comments and recommendations for the study's success. Implementation is the step-by-step procedure for the deployment of the system.

The web-based application is used in website development based on the students' needs from Occidental Mindoro State College. The research employed the research designs in developing the Financial Literacy application. The experimental study focuses on the processes involved in developing the system to identify the appropriate and well-structured format suitable for end-users.

The researcher administered an assessment among faculty members, students, and Occidental Mindoro State College experts for the website's validation. Moreover, the website development's content and information were assessed through the validated survey questionnaire by peers and experts in the field. The application was evaluated by 145 students from Occidental Mindoro State College, AY 2021 – 2022. They were randomly selected using simple random sampling.

### *Research Design*

The researcher used the descriptive method of research utilizing the developmental study. The descriptive developmental study was used to attain the desired evaluation of the developed Financial Literacy Web-based Learning Application Tool.

The study used the descriptive research method through the survey technique. It aims to describe the prevailing conditions of people, events, or phenomena. As a result, the Website Evaluation Questionnaire was adopted and used to assess Financial Literacy Web-based Learning Application Tool for Students.

### *Sources of Data*

Questionnaires utilized were the Website Evaluation Questionnaire (WEQ) instrument, one of the websites' most popular evaluation tools. It was developed by the Human Factors

Research Group (HFRG) in 1999 (Claridge and Kirakowski, 2011).

The study was developed Financial Literacy Web-based Learning Application Tool. It was administered to Occidental Mindoro State College students and faculty during 2021 – 2022.

#### *Statistical Treatment of Data*

Mean was used to determine how the student-respondents evaluated the website using ease of use, hyperlinks, structure, relevance, comprehension, completeness, layout, and search option.

### **III.RESULT AND DISCUSSION**

#### *Project Description and Structure*

The Web-based Financial Literacy Application created a useful online tool for students that consisted of different buttons, navigations, images, links, and text. In addition, the website aimed to update, evaluate the current and subsequent learning tools and environment for students through videos, lessons, activities and provide valuable and informative information through a webinar. The application was composed of a home page that can be viewed online using a different browser like Google Chrome, Bing, Mozilla Firefox, Torch and Internet Browser, and the like. Besides, the application is compatible with a personal computer, laptop, and mobile phone.

#### *Website Evaluation*

Evaluated the website's performance for ease of use, hyperlinks, structure, relevance, comprehension, completeness, layout, and search option. There were 145 randomly selected students who evaluated the website. All the criteria provided were considered as an essential aspect of website development. Every component needs to work quickly and correctly. The site worked as expected, including forms, site search, and hyperlinks. In addition, the negative statements were tabulated and converted into positive values to inverse the result for the tabulated data for more precise interpretation.

Table 1 shows the result of the website's appropriate placement, navigation, and environment manipulation. Ease of use represents the totality of the site in terms of its presentation, design, environmental manipulation, and information content. Two (2) items were evaluated as Extremely Useful. At the same time, the website's difficulty is moderately helpful (3.10), and the overall ease of use means 3.90, which shows that the respondents quickly find what they are searching for. Therefore, they appreciate the overall usefulness of the website.

*Table 1. The ease of use of the Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions.*

Ease of Use	Mean	Descriptive Rating
I find this website easy to use.	4.30	Extremely Useful
I consider this website user-friendly.	4.30	Extremely Useful
I had difficulty using the website. *	3.10	Moderately Useful
Overall Mean	3.90	Very Useful

Table 2 shows the result of the evaluation of the website hyperlink. It gained a mean score of 4.15. Providing good quality information helps the user provide Very Satisfied results. Hyperlinks are essential to reference a document in another document. The website hyperlinks connect pages and other resource information such as images, videos, and buttons. In addition, hyperlinks help the user be interested in manipulating the sites.

*Table 2. The Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions are hyperlinks.*

Hyperlinks	Mean	Descriptive Rating
1. The homepage directs me towards the information I need.	4.50	Extremely Satisfied
2. The homepage immediately points to the information I need.	4.40	Extremely Satisfied
3. It is unclear which hyperlink will lead to the information I am looking for.	3.50	Very Satisfied
4. Under the hyperlinks, I found the information I expected to find there.	4.20	Extremely Satisfied
Overall Mean	4.15	Very Satisfied

Table 3 presents the evaluation result concerning the website's structure. It shows that the information needed is easy to find, which obtained a mean score of 4.30 interpreted as Extremely Satisfied. The redirection of the website (4.10) and the structure of the website is clear (4.40) were also interpreted as Extremely Satisfied, while the website convenience helps find information easily (4.40) were interpreted as Extremely Satisfied. The overall mean of 4.30, which is extremely satisfactory, shows the structure is valuable from the homepage, category, tags, and pages interconnectivity.

*Table 3. The Financial Literacy Web-based Learning Application Tool structure for Students of Higher Education Institutions.*

Structure	Mean	Descriptive Rating
1. I know where to find the information I need on this website.	4.30	Extremely Satisfied
2. I was constantly being redirected to this website while I was looking for	4.10	Very Satisfied

information.

3. I find the structure of this website clear.	4.50	Extremely Satisfied
4. The convenient setup of the website helps me find the information I am looking for.	4.20	Extremely Satisfied
Overall Mean	4.15	Very Satisfied

Table 4 revealed that the results for relevance are all Extremely Relevant and the overall mean score was 4.40. The result shows that the website performs well per the respondents' expectations. The website provides a good user experience that makes them accessible and navigates easily to needed information. In addition, the tools and content of the site meet the user's requirements, and the users considered the website as compact, coherent, sequential, and logical.

*Table 4. The relevance of the Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions.*

Relevance	Mean	Descriptive Rating
1. I find the information on this website helpful.	4.50	Extremely Relevant
2. The information on this website is of little use to me	4.30	Extremely Relevant
3. This website offers information that I find useful	4.40	Extremely Relevant
Overall Mean	4.40	Extremely Relevant

Table 5 shows the comprehension performance of the website with an overall mean of 4.17 indicates that the website is easy to use and understand. The website obtained a very satisfactory rating because it is language and information they can easily trace the information they are looking for. In addition, the icons and links are well organized and easy to access.

*Table 5. The comprehension of the Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions.*

Comprehension	Mean	Descriptive Rating
1. The language used in this website is clear to me.	4.60	Extremely Satisfied
2. I find the information on this website easy to understand.	4.50	Extremely Satisfied
3. I find many words on this website difficult to understand. *	3.40	Very Satisfied
Overall Mean	4.17	Very Satisfied

Table 6 shows the completeness performance of the website with an overall mean of 3.93 indicates that the website is complete. Thus, the website obtained a very satisfactory rating because it provides sufficient information on financial literacy.

*Table 6. The completeness of the Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions.*

Completeness	Mean	Descriptive Rating
1. The website provides me with sufficient information.	4.50	Extremely Complete
2. I find the information on this website incomplete. *	3.20	Moderately Complete
3. I find the information on this website precise.	4.10	Very Complete
Overall Mean	3.93	Very Complete

Table 7 shows the layout performance of the website with an overall mean of 3.83, indicating that the website is appealing and looks

attractive. The website obtained a Delighted result since the layout is simple, clean, and designed to draw attention to the user. In addition, the website is well presented, and its content is well organized, including the menu options and its elements. The design and links are well organized and easy to access.

*Table 7. The layout of the Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions.*

Layout	Mean	Descriptive Rating
1. I think this website looks unattractive. *	3.00	Moderately Satisfied
2. I like the way this website looks.	4.23	Extremely Satisfied
3. I find the design of this website appealing.	4.20	Extremely Satisfied
Overall Mean	3.83	Very Satisfied

Table 8 shows the search option performance of the website with an overall mean of 4.07 indicates that the website is easy to navigate and manipulate. Thus, the website obtained a very satisfactory rating because it is helpful in the sense that even they utilized the site for the first time, they can easily trace the lessons they are looking for. In addition, the icons and links are well organized and easy to access.

*Table 8. The Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions is the search option.*

Search Option	Mean	Descriptive Rating
1. This website's search option helps me find the correct information.	4.40	Extremely Satisfied
2. The search option on this website gives me valuable results.	4.40	Extremely Satisfied
3. The search option on this	3.40	Very Satisfied

website gives me too many irrelevant results.*		
Overall Mean	4.07	Very Satisfied

Table 9 shows the summary results for the Financial Literacy Web-based Learning Application tool for students. The respondents obtained exceeded expectations on the eight different criteria used in the evaluation of the site. The mean score of 3.90 for ease of use signified that the website was simple but attractive and had relevant information. The hyperlinks obtained a mean score of 4.15, which showed that the site was easy to navigate and manipulate. The respondents considered the site structure helpful with a mean of 4.30 due to the proper presentation of links, space, navigation, icons, and image locations.

The system's relevance achieved an overall mean of 4.40, which signified that the system performed the tasks required, provided comfort and convenience to the respondents. Comprehension obtained an overall mean of 4.17. The result proves that the system used effective coding languages, which is essential and significant to attain the objectives of the site that provide a significant impact on the users. The result for the website's completeness is 3.93, while the layout is 3.83. The search option is 4.07, interpreted as exceeding expectations.

Summary of website performance evaluation results shows that relevance got the highest mean of 4.40 and was interpreted as greatly exceeding expectations and structure with a mean of 4.30. The rest of the criteria were all evaluated as exceeding expectations. Therefore, the system can be one of the tools that help students interact, communicate, share information and resources that lead to learning.

*Table 9. Qualitative Interpretation of the Financial Literacy Web-based Learning Application Tool for Students of Higher Education Institutions.*

Criteria	Mean	Descriptive Rating
Ease of Use	3.90	Exceeded Expectations
Hyperlinks	4.15	Exceeded Expectations
Structure	4.30	Greatly Exceeded Expectations
Relevance	4.40	Greatly Exceeded Expectations
Comprehension	4.17	Exceeded Expectations
Completeness	3.93	Exceeded Expectations
Layout	3.83	Exceeded Expectations
Search Option	4.07	Exceeded Expectations
Grand Mean	4.07	Exceeded Expectations

#### IV. CONCLUSION

Every year, the number of graduates produced by Higher Education Institutions (HEI) increases. The scenario is that the number matches job opportunities in the industry. The study provides valuable information about the graduate employment status, forecasting, visualization, and the exploration of classifiers algorithm to analyze the graduate employability in government, non-government organizations, self-employed, and unemployed.

In consideration of the objectives of the study and the results of testing and evaluation carried out, derived the following conclusions:

1. The Financial Literacy Web-based Learning Application Tool for students of HEIs was successfully designed. It has well-represented digital information; it can upload different files as supplementary learning material, and it can communicate easily through comment spaces and buttons.
2. The developed website is compliant with Website Evaluation Questionnaire (WEQ) standards in terms of attractiveness, controllability, efficiency, helpfulness, and learnability as validated by respondents in the test results, and
3. The respondents' evaluation of the website "Exceeded Expectations" proved that the



website could be a valuable educational tool in financial literacy education and learning.

## V. RECOMMENDATIONS

The utilization of the Financial Literacy Website was highly recommended to both the faculty and students of Occidental Mindoro State College. Likewise, the web application can also be disseminated through an extension program to provide additional knowledge and information to the Out-School Youth (OSY) and even to the Senior High School students in the whole province of Occidental Mindoro.

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