ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

ACCEPTABILITY OF SHASP: SELF-HELP APP IN STATISTICS AND PROBABILITY

John Nimrod M. Ladiana.[1], Benjamin O. Arjona, EdD.[2]

[1] *Teacher, Barangay Longos Senior High School, Kalayaan, Laguna, Philippines*

[2]*Professor, College of Teacher Education, Laguna State Polytechnic University – Main Campus, Santa Cruz, Laguna, Philippines*

ABSTRACT

The main objective of this study was to develop a multi-device compatible, offline interactive digital Self-Learning Module called SHASP: Self-Help App in Statistics and Probability, which was designed to help the Grade 11 students to become independent learners. Specifically, it sought to answer the following questions: 1. What is the level of acceptability of SHASP: Self- Help App in Statistics and Probability in terms of the following pedagogical components namely learning content, assessment exercises, consistency, adaptability and appropriateness?; 2. What is the level of acceptability of SHASP: Self- Help App in Statistics and Probability in terms of the following technical components namely technical quality, ease of use and aesthetic value?

The respondents of the study consisted of 30 select Mathematics teachers (15 from Lumban District and 15 from Kalayaan District) who evaluated the developed SHASP: Self-Help App in Statistics and Probability.

The researcher gathered data and information on the lessons for the third quarter period in the said subject, giving close consideration on the DepEd-released self-learning modules, books, journals, video tutorials and other related articles and other forms of literature that can serve as supporting documents, give credibility to the boundaries of the lessons and immediate need for a workable solution.

Regarding SHASP: Self-Help App on Statistics and Probability, the researcher focused on the usage of computer-based instructional materials providing a detailed step-by-step word problem solving as well as practice problems for assessment and enrichment.

These are the results of this study. SHASP: Self-Help App in Statistics and Probability was given a remark of highly acceptable in all of its pedagogical components. The weighted mean are as follows: Learning Content (M = 4.55); Assessment Exercises (M= 4.58); Consistency (M= 4.49); Adaptability (M=4.56); Appropriateness (M= 4.48). It was also was given a remark of highly acceptable in all of its technical components. The weighted mean are as follows: Technical Quality(M = 4.50); Ease of Use (M= 4.51); Aesthetic Value (M= 4.61).

Based on the data gathered and its findings, the researcher conclude that SHASP: Self-Help App In Statistics And Probability may be used as a learning material during the learners' independent study. The researcher arrived at this conclusion as the teacher-evaluators agreed that there is sufficient learning content covered, adequate assessment exercises for mastery of each lesson, the lessons are consistent and related with each other, they are appropriate for the current grade level, may be used as an alternative learning material because it is adaptive, free from errors, easy to use and contains a visual design which helps maintain the learners interest.

INTRODUCTION

Over a period of only few months, drastic changes have already been made in the Philippine education system. These changes were brought about by the global pandemic COVID-19. The main dilemma for the continuity of learning are the risks caused by this contagious disease. Because of this, people are instructed to stay at home and observe health protocols as per advised by the Inter-Agency Task Force.

To pursue learning continuity amidst the pandemic, the DepEd Order No. 18, s. 2020 was released, whereas different distance learning modalities will be utilized. Thus, the production of Alternative Delivery Modules (ADMs) or Self-Learning Modules (SLMs) is initiated. Under the said Deped order, ADMs or SLMs are defined as self-contained, self-instructional, self-paced and interactive learning resources for public schools intended for learning a specific topic or lesson where the learner interacts actively with the instructional material rather than reading the material passively. The main strategy for this learning continuity plan is the independent study. By utilizing this strategy, the teacher's external control is reduced and the students

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

interact more with the content. The different methods in this strategy aim to develop learners' initiative, self reliance and self-improvement.

The use of Computer-Assisted Instruction (CAI) aids the independent learning environment. An article in resources.intenseschool.com defines CAI as the use of electronic devices/computers to provide educational instruction and to learn. It is also pointed out in the article that the main edge that CAI has over other education methods is interaction. Computers can stimulate the active interest of students during the learning process at multiple levels.

The main objective of this study was to develop an offline interactive digital self-learning module in Statistics and Probability which was designed to help the Grade 11 students to become independent learners with minimal to zero assistance from the teacher. This digital interactive learning material will serve as an innovation to the existing learning materials to support learning continuity despite the effects of the pandemic. Students with no internet connection at home are especially taken into consideration in this study.

RESEARCH METHODOLOGY

The study is about the development and validation of an offline interactive digital self-learning module called SHASP: Self-Help App in Statistics. The respondents consisted of 30 select Mathematics teachers (15 from Lumban District and 15 from Kalayaan District) who are experts in evaluating and validating instructional material from different public secondary schools in the fourth district of Laguna.

Sampling Techniques

The researcher used purposive sampling technique. The respondents of the study who are Mathematics teachers in Lumban District and Kalayaan District, were purposely selected as evaluators and respondents of the study.

Data Gathering Procedure

A letter of request was submitted to the Schools Division Superintendent, to ask permission to conduct the study. After the approval, with the permission of School Principals, distribution of the questionnaires to the Mathematics teachers in the fourth district of Laguna was arranged. Data gathered were tabulated, analyzed, and computed, applying the relevant statistical treatment.

Research Procedure

Before the conduct of the study, a permit was secured from the Office of the Schools Division Superintendent. The proponent went through different stages, and then monitored its development until the completion of the study.

Research Instrument

The data for this study were gathered by means of questionnaire. A researcher-made questionnaire was employed as a part of the instrument in gathering the data.

The questionnaire aimed to generate assessment among the Mathematics teachers. It has two (2) parts. The first part is about the pedagogical components of the app namely the learning content, assessment exercises, consistency, adaptability and appropriateness. They refer to the components of the app which are related to the teaching and learning process. The last part is about the technical components of the app namely the technical quality, ease of use and aesthetic value. They refer to the components of the app that are related to SHASP being a software or an application program.

Ranges of Statistical Treatment

Table 2. presents various ranges in the statistical treatment.

Rating	Range	Verbal Interpretation
5	4.20-5.00	*Highly Acceptable*
4	3.60-4.19	*Very Acceptable*
3	2.40-3.59	*Moderately Acceptable*
2	1.80-2.39	*Slightly Acceptable*
1	1.00-1.79	*Not Acceptable*

Validation

In the process, the questionnaire went through the process of validation to determine the degree of its effectiveness. This is to ensure that the variables to be measured with the survey instrument will be measured with accuracy so that the specific objectives of the study will be achieved.

Consultation with experts and advisers were accomplished to validate the contents. This is to assure that no items overlap and that all items reflect the subtopic with much clarity and understanding.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

Statistical Treatment

After preparing the measuring instruments, the researcher processed the raw data into quantitative forms. Data processing involves input which involves the responses to the measuring instrument of the subjects of the study.

To reveal the level of acceptability and validity of SHASP: Self-Help App in Statistics and Probability, the weighted mean was used. The formula is:

$$WM = \frac{4f + 3f + 2f + f}{N}$$

Wherein:

WM = Weighted mean value
f = frequency of responses
N = total number of cases

RESULTS AND DISCUSSIONS

The researcher utilized the computed mean, standard deviation, and weighted mean in determining whether the acceptability and validity of SHASP: Self-Help App in Statistics and Probability. A five-point Likert scale was employed to verbally interpret the weighted mean.

Table 1. Level of Acceptability of SHASP In Terms of Learning Content

The SHASP Learning Content…	Weighted Mean	Standard Deviation	Verbal Interpretation
1. includes the most important aspects of what is being taught.	4.70	0.47	Highly Acceptable
2. leads to the attainment of the objectives that are set in the MELCs.	4.43	0.50	Highly Acceptable
3. is adequate for the presentation/discussion of the objectives that are set in the MELCs.	4.50	0.51	Highly Acceptable
4. includes activity instructions that are concise, and easy to follow.	4.50	0.51	Highly Acceptable
5. contains concepts for each activity that are arranged logically to ensure no duplication.	4.63	0.49	Highly Acceptable
Overall Mean = 4.55 **Standard Deviation = 0.50** **Verbal Interpretation = Highly Acceptable**			

Legend:

Range	Verbal Interpretation
4.20-5.00	Highly Acceptable
3.40-4.19	Acceptable
2.60-3.39	Moderately Acceptable
1.80-2.59	Less Acceptable
1.00-1.79	Not Acceptable

Table 1 presents the acceptability of SHASP: Self-Help App in Statistics and Probability in terms of learning content. In this study, learning content refers to the collection of text, audio, visual, and audio-visual materials which are intended to facilitate the acquisition of knowledge of learners.

The overall weighted mean of 4.56 with the 0.49 standard deviation implies that in terms of learning content, the teacher-evaluators deemed SHASP: Self-Help App in Statistics and Probability to be highly acceptable.

As seen in table 1, includes the most important aspects of what is being taught got a weighted mean of 4.70 and a standard deviation of 0.47 and is verbally interpreted as *highly acceptable*; leads to the attainment of the objectives that are set in the MELCs obtained a weighted mean of 4.43 and a standard deviation of 0.50 and is verbally interpreted as *highly acceptable*; is adequate for the presentation/discussion of the objectives that are set in the MELCs gained a weighted mean of 4.50 and a standard deviation of 0.51 and is verbally interpreted as *highly acceptable*; includes concise activity instructions, and easy to follow had a weighted mean of 4.50 and a standard deviation of 0.51 and is verbally interpreted as *highly acceptable*; contains concepts for each activity that are arranged logically to ensure no duplication earned a weighted mean of 4.67 and a standard deviation of 0.48 and is verbally interpreted as *highly acceptable*.

According to Kumar et al. (2021), to satisfy the learners and to impart them quality knowledge and education, e-learning content comprising of excellent learning is of paramount importance. They added that to achieve the learners' satisfaction, the institutions should strive for rendering the e-learning content of supreme quality. Furthermore, the mediating role of e-learning quality between content and students' satisfaction is also established to be a significant one.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

Table 2. Level of Acceptability of SHASP In Terms of Assessment Exercises

The SHASP assessment exercises are…	Weighted Mean	Standard Deviation	Verbal Interpretation
1. Relevant to the objectives	4.57	0.50	Highly Acceptable
2. Sufficient to improve student's mathematical knowledge and skills	4.57	0.63	Highly Acceptable
3. Appropriate to student's abilities	4.60	0.56	Highly Acceptable
4. Adequate to determine mastery level of students	4.63	0.49	Highly Acceptable
5. Suited to measure higher order thinking skills	4.53	0.57	Highly Acceptable
Overall Mean = 4.58 **Standard Deviation = 0.55** **Verbal Interpretation = Highly Acceptable**			

Legend:

Range	Verbal Interpretation
4.20-5.00	Highly Acceptable
3.40-4.19	Acceptable
2.60-3.39	Moderately Acceptable
1.80-2.59	Less Acceptable
1.00-1.79	Not Acceptable

Table 2 presents the acceptability of SHASP: Self-Help App in Statistics and Probability in terms of assessment exercises. This refers to the materials to be used in determining the understanding of the students to the concept of every lesson. In this study, they are in the form of multiple-choice, problem sets, and enrichment activities.

The overall weighted mean of 4.58 with the 0.55 standard deviation implies that in terms of assessment exercises, the teacher-evaluators deemed SHASP: Self-Help App in Statistics and Probability to be highly acceptable.

As seen in table 2, relevant to the objectives earned a weighted mean of 4.57 and a standard deviation of 0.50 and is verbally interpreted as highly acceptable; sufficient to improve student's mathematical knowledge and skills obtained a weighted mean of 4.57 and a standard deviation of 0.63 and is verbally interpreted as highly acceptable; appropriate to student's abilities had a weighted mean of 4.60 and a standard deviation of 0.56 and is verbally interpreted as highly acceptable; adequate to determine mastery level of students gained a weighted mean of 4.63 and a standard deviation of 0.49 and is verbally interpreted as highly acceptable; suited to measure higher-order thinking skills got a weighted mean of 4.53 and a standard deviation of 0.57 and is verbally interpreted as highly acceptable.

In the OECD/CERI International Conference themed "Learning in the 21st Century: Research, Innovation, and Policy", it was discussed that assessments are used to measure what students have learned at the end of a unit, to promote students, to ensure they have met required standards on the way to earning certification for school completion or to enter certain occupations, or as a method for selecting students for entry into further education. It was also mentioned that they are used to identify learning needs and adjust teaching strategies appropriately.

Table 3. Level of Acceptability of SHASP In Terms of Consistency

SHASP…	Weighted Mean	Standard Deviation	Verbal Interpretation
1. Contains topics that are coherent or logically related to each other	4.63	0.49	Highly Acceptable
2. Provides learning tasks that are directly related to the objectives of the lessons	4.53	0.51	Highly Acceptable
3. Reflects objectives that are attainable in each lesson	4.40	0.50	Highly Acceptable
4. Focuses on the main goal which is the	4.47	0.57	Highly

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

development of learners' mathematical skills			Acceptable
5. Topics conform with the Most Essential Learning Competencies (MELC)	4.43	0.63	Highly Acceptable
Overall Mean = 4.49 **Standard Deviation = 0.54** **Verbal Interpretation = Highly Acceptable**			

Legend:

Range	Verbal Interpretation
4.20-5.00	Highly Acceptable
3.40-4.19	Acceptable
2.60-3.39	Moderately Acceptable
1.80-2.59	Less Acceptable
1.00-1.79	Not Acceptable

Table 3 presents the acceptability of SHASP: Self-Help App in Statistics and Probability in terms of consistency. In this study, this refers to the congruence of the parts of SHASP to the entire material and the other parts. It also refers to the agreement and harmony of different topics to one another or as a whole. It also deals with the firmness of materials used.

The overall weighted mean of 4.49 with the 0.54 standard deviation implies that in terms of consistency, the teacher-evaluators deemed SHASP: Self-Help App in Statistics and Probability to be highly acceptable.

As seen in table 3, contains topics that are coherent or logically related to each other earned a weighted mean of 4.63 and a standard deviation of 0.49, and is verbally interpreted as highly acceptable; provides learning tasks that are directly related to the objectives of the lessons gained a weighted mean of 4.53 and a standard deviation of 0.51 and is verbally interpreted as highly acceptable; reflects objectives that are attainable in each lesson obtained a weighted mean of 4.40 and a standard deviation of 0.50 and is verbally interpreted as highly acceptable; focuses on the main goal which is the development of learners' mathematical skills had a weighted mean of 4.47 and a standard deviation of 0.57 and is verbally interpreted as highly acceptable; topics conform with the Most Essential Learning Competencies (MELC) got a weighted mean of 4.43 and a standard deviation of 0.63 and is verbally interpreted as highly acceptable.

According to Ramnarain (2018), when learning experiences are regarded as fragmented, disconnected, and inconsistent, these experiences limit the students' conceptual understanding of the lesson, leading to poor performance in the subject.

Table 4. Level of Acceptability of SHASP In Terms of Adaptability

SHASP…	Weighted Mean	Standard Deviation	Verbal Interpretation
1. Includes learning tasks which are designed to enhance the learners' mathematical skills	4.53	0.51	Highly Acceptable
2. Contains lessons that are relevant to the target learners' personal experiences	4.60	0.62	Highly Acceptable
3. Offers a variety of activities	4.47	0.57	Highly Acceptable
4. Illustrates real-life experiences that can be a basis for comprehension	4.57	0.73	Highly Acceptable
5. Can be a supplement or substitute for existing learning materials	4.63	0.56	Highly Acceptable
Overall Mean = 4.56 **Standard Deviation = 0.60** **Verbal Interpretation = Highly Acceptable**			

Legend:

Range	Verbal Interpretation
4.20-5.00	Highly Acceptable
3.40-4.19	Acceptable
2.60-3.39	Moderately Acceptable
1.80-2.59	Less Acceptable
1.00-1.79	Not Acceptable

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

Table 4 presents the acceptability of SHASP: Self-Help App in Statistics and Probability in terms of adaptability. In this study, adaptability refers to the capability of SHASP to be utilized in the educational scenario where the students are in the independent home study arrangement due to the pandemic.

The overall weighted mean of 4.53 with the 0.62 standard deviations implies that in terms of adaptability, the teacher-evaluators deemed SHASP: Self-Help App in Statistics and Probability to be highly acceptable.

As seen in table 4, includes learning tasks that are designed to enhance the learners' mathematical skills got a weighted mean of 4.53 and a standard deviation of 0.51 and is verbally interpreted as highly acceptable; contains lessons that are relevant to the target learners' personal experiences had a weighted mean of 4.60 and a standard deviation of 0.62 and is verbally interpreted as highly acceptable; offers a variety of activities earned a weighted mean of 4.47 and a standard deviation of 0.57 and is verbally interpreted as highly acceptable; illustrated real-life experiences that can be a basis for comprehension obtained a weighted mean of 4.57 and a standard deviation of 0.73 and is verbally interpreted as highly acceptable; can be a supplement or substitute for existing learning materials gained a weighted mean of 4.50 and a standard deviation of 0.68 and is verbally interpreted as highly acceptable.

According to Almanar (2020), to be considered adaptable in distance learning amidst the pandemic, the learning material must be designed to be flexible and be able to provide convenience in learning to produce students who are autonomous learners.

Table 5. Level of Acceptability of SHASP In Terms of Appropriateness

SHASP…	Weighted Mean	Standard Deviation	Verbal Interpretation
1. Provides activities that are suited to the objectives of each lesson	4.60	0.50	Highly Acceptable
2. Presents lessons which are based on real-life contexts	4.47	0.51	Highly Acceptable
3. Includes exercises that assess objectively the level of knowledge of the target learners	4.50	0.51	Highly Acceptable
4. Contains topics that are suitable, interesting, current and up-to-date	4.43	0.50	Highly Acceptable
5. Takes in consideration the varying attitudes and capabilities of the learners	4.40	0.50	Highly Acceptable
Overall Mean = 4.48 **Standard Deviation = 0.50** **Verbal Interpretation = Highly Acceptable**			

Legend:

Range	Verbal Interpretation
4.20-5.00	Highly Acceptable
3.40-4.19	Acceptable
2.60-3.39	Moderately Acceptable
1.80-2.59	Less Acceptable
1.00-1.79	Not Acceptable

Table 5 presents the acceptability of SHASP: Self-Help App in Statistics and Probability in terms of appropriateness. This study refers to the compatibility of SHASP with the current curriculum. It also refers to its applicability to the alternative distance learning modality.

The overall weighted mean of 4.48 with the 0.50 standard deviation implies that in terms of appropriateness, the teacher-evaluators deemed SHASP: Self-Help App in Statistics and Probability to be highly acceptable.

As seen in Table 5, provides activities that are suited to the objectives of each lesson obtained a weighted mean of 4.60 and a standard deviation of 0.50 and is verbally interpreted as highly acceptable; presents lessons which are based on real-life contexts had a weighted mean of 4.47 and a standard deviation of 0.51 and is verbally interpreted as highly acceptable; includes exercises that assess objectively the level of knowledge of the target learners gained a weighted mean of 4.50 and a standard deviation of 0.51 and is verbally interpreted as highly acceptable; contains topics that are suitable, interesting, current and up-to-date earned a weighted mean of 4.43 and a standard deviation of 0.50 and is verbally interpreted as highly acceptable;

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

takes in consideration the varying attitudes and capabilities of the learners got a weighted mean of 4.40 and a standard deviation of 0.50 and is verbally interpreted as highly acceptable.

According to Darwis et al. (2020), the teacher must be able to provide teaching materials under the learning objectives to be achieved. The thing that must be considered by the teacher in preparing teaching material is the audience who will use the learning material. He added that these things must be considered to make the learning material appropriate.

Table 6. Level of Acceptability of SHASP In Terms of Technical Quality

SHASP…	Weighted Mean	Standard Deviation	Verbal Interpretation
1. includes various buttons that have functions that are obvious and easy to use	4.47	0.51	Highly Acceptable
2. Uses appropriate text font, size and type.	4.50	0.57	Highly Acceptable
3. uses appropriate graphics and illustrations	4.53	0.51	Highly Acceptable
4. uses appropriate audio-visual materials	4.43	0.50	Highly Acceptable
5. contains correct prompts and feedbacks	4.57	0.50	Highly Acceptable
Overall Mean = 4.50 **Standard Deviation = 0.52** **Verbal Interpretation = Highly Acceptable**			

Legend:

Range	Verbal Interpretation
4.20-5.00	Highly Acceptable
3.40-4.19	Acceptable
2.60-3.39	Moderately Acceptable
1.80-2.59	Less Acceptable
1.00-1.79	Not Acceptable

Table 6 presents the acceptability of SHASP: Self-Help App in Statistics and Probability in terms of technical quality. This involves different technical considerations in evaluating SHASP. This includes the clarity of text, design and multimedia elements, the correctness of prompts and feedbacks, appropriateness of audio, visual, and audio-visual materials that are incorporated in the app.

The overall weighted mean of 4.50 with the 0.52 standard deviation implies that in terms of technical quality, the teacher-evaluators deemed SHASP: Self-Help App in Statistics and Probability to be highly acceptable.

As seen in table 6, contains icons that are visually pleasing and easy to understand had a weighted mean of 4.47 and a standard deviation of 0.51, and is verbally interpreted as highly acceptable; uses appropriate text font, size and type earned a weighted mean of 4.50 and a standard deviation of 0.57 and is verbally interpreted as highly acceptable; contains visuals that fit the level of interests, knowledge and skills of the target learners got a weighted mean of 4.53 and a standard deviation of 0.51 and is verbally interpreted as highly acceptable; incorporates illustrations that simplify complex concepts to acquire mathematical skills obtained a weighted mean of 4.43 and a standard deviation of 0.50 and is verbally interpreted as highly acceptable; make use of illustrations which are interesting and suited to the lessons gained a weighted mean of 4.57 and a standard deviation of 0.50 and is verbally interpreted as highly acceptable.

Khalifa et al. (2010) enumerated different points to consider when rating the technical quality of educational software. They are as follows: 1)The program is enjoyable to use; 2) Graphics must be meaningful to and enjoyed by children; 3) Children must want to return to this program time after time; 4) Challenge level should be fluid, or a child should be able to select from a range of difficulty levels; 5) The program must be responsive to a child's actions; 6) The theme of the program must be meaningful to children.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

Table 7. Level of Acceptability of SHASP In Terms Of Ease of Use

SHASP…	Weighted Mean	Standard Deviation	Verbal Interpretation
1. Has content that is easy to navigate	4.57	0.63	Highly Acceptable
2. Includes directions that are easy to understand.	4.43	0.68	Highly Acceptable
3. Contains a feature that lets students exit the app anytime	4.40	0.62	Highly Acceptable
4. Contains a feature that lets students restart the app where they stopped	4.67	0.48	Highly Acceptable
5. Can be reliable and is free of disruption due to system error	4.47	0.57	Highly Acceptable
Overall Mean = 4.51 **Standard Deviation = 0.60** **Verbal Interpretation = Highly Acceptable**			

Legend:

Range	Verbal Interpretation
4.20-5.00	Highly Acceptable
3.40-4.19	Acceptable
2.60-3.39	Moderately Acceptable
1.80-2.59	Less Acceptable
1.00-1.79	Not Acceptable

Table 7 presents the acceptability of SHASP: Self-Help App in Statistics and Probability in terms of ease of use. This deals with the aspects of SHASP that make it straightforward for the student to operate productively. Issues such as ease of navigation and the ability to quit the program and go back where it was exited may be included here .

The overall weighted mean of 4.51 with the 0.60 standard deviations implies that in terms of ease of use, the teacher-evaluators deemed SHASP: Self-Help App in Statistics and Probability to be highly acceptable.

As seen in table 7, has content that is easy to navigate had a weighted mean of 4.57 and a standard deviation of 0.63, and is verbally interpreted as highly acceptable; includes directions that are easy to understand. obtained a weighted mean of 4.43 and a standard deviation of 0.68 and is verbally interpreted as highly acceptable; contains a feature that lets students exit the app anytime got a weighted mean of 4.40 and a standard deviation of 0.62 and is verbally interpreted as highly acceptable; contains a feature that lets students restart the app where they stopped earned a weighted mean of 4.67 and a standard deviation of 0.48 and is verbally interpreted as highly acceptable; can be reliable and is free of disruption due to system error gained a weighted mean of 4.47 and a standard deviation of 0.57 and is verbally interpreted as highly acceptable.

Khalifa et al. (2010) listed factors when rating the ease of use of educational software. They said that children should be able to use the program with minimal help, and to use the program independently after the first try. Next, the accessing key menus or buttons should be straightforward to understand. Then, the graphics are only effective if they make sense to the intended user. Also, the icons must be large and easy to select with a moving cursor.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

Table 8: Level of Acceptability of SHASP In Terms of Aesthetic Value

SHASP…	Weighted Mean	Standard Deviation	Verbal Interpretation
1. Has content that is easy to navigate	4.57	0.63	Highly Acceptable
2. Includes directions that are easy to understand.	4.43	0.68	Highly Acceptable
3. Contains a feature that lets students exit the app anytime	4.40	0.62	Highly Acceptable
4. Contains a feature that lets students restart the app where they stopped	4.67	0.48	Highly Acceptable
5. Can be reliable and is free of disruption due to system error	4.47	0.57	Highly Acceptable
Overall Mean = 4.61 **Standard Deviation = 0.53** **Verbal Interpretation = Highly Acceptable**			

Legend:

Range	Verbal Interpretation
4.20-5.00	Highly Acceptable
3.40-4.19	Acceptable
2.60-3.39	Moderately Acceptable
1.80-2.59	Less Acceptable
1.00-1.79	Not Acceptable

Table 8 presents the acceptability of SHASP: Self-Help App in Statistics and Probability in terms of aesthetic value. This refers to the creative design of SHASP's app interface. This involves the harmony of the images, icons, graphic illustrations, moving images, and video presentations which are specifically chosen to attract the learners to continue using the app.

The overall weighted mean of 4.61 with the 0.53 standard deviation implies that in terms of aesthetic value, the teacher-evaluators deemed SHASP: Self-Help App in Statistics and Probability to be highly acceptable.

As seen in table 8, contains icons that are visually pleasing and easy to understand gained a weighted mean of 4.73 and a standard deviation of 0.45, and is verbally interpreted as highly acceptable; uses appropriate text font, size and type got a weighted mean of 4.47 and a standard deviation of 0.51 and is verbally interpreted as highly acceptable; contains visuals that fit the level of interests, knowledge, and skills of the target learners had a weighted mean of 4.50 and a standard deviation of 0.68 and are verbally interpreted as highly acceptable; incorporates illustrations that simplify complex concepts to acquire mathematical skills earned a weighted mean of 4.70 and a standard deviation of 0.47 and is verbally interpreted as highly acceptable; make use of illustrations which are interesting and suited to the lessons obtained a weighted mean of 4.67 and a standard deviation of 0.55 and is verbally interpreted as highly acceptable.

In evaluating the visual design of software, Redish (2012) suggested especially to consider the visual design's color, space, and typography. According to him, these factors contribute largely to the aesthetic value which affects the continuous usage of the software. He further explained that the visual design of software must make the content easy to access and the information content must be useful to the reader.

CONCLUSION

In view of the aforementioned findings, the study has drawn the following conclusions:

1. SHASP: Self-Help App in Statistics and Probability was given a remark of highly acceptable in all of its pedagogical components.
2. SHASP: Self-Help App in Statistics and Probability was given a remark of highly acceptable in all of its technical components.
3. The developed offline interactive digital learning material was found ready for usage as an innovation to the existing learning materials to support learning continuity despite the effects of the pandemic.

RECOMMENDATIONS

Based on the findings and the conclusions, the following are the recommendations are offered:

1. Utilization of SHASP: Self-Help App in Statistics and Probability is recommended

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

for use of Grade 11 students in their independent study.

2. School administrators are encouraged to provide the teachers the means to create interactive digital learning materials.
3. It is suggested for teachers to equip themselves with the appropriate ICT skills by attending related pieces of training to produce interactive digital learning materials.
4. It is recommended for researchers to continue this study by testing its effectiveness to actual Grade 11 students of Statistics and Probability.
5. Similar studies about the use of interactive digital learning materials as intervention are therefore recommended not only in the field of Statistics and Probability but also in the other subjects.

REFERENCES

1. *Abirin S. G., & Obra Jr., M.R., Ed.D. (2018). Development and Use of Social Media-Based Mathematics Instructional Module for Grade 7 Students of Geras Integrated School. New Media and Mass Communication, 72(31).*
2. *Almanar, M. (2020). The Shifting Of Face To Face Learning To Distance Learning During The Pandemic Covid-19. Muhammadiyah University.*
3. *Anwar, M. S., Choirudin, Ningsih, E.F., Dewi, T., & Maseleno, A. (2019). Developing an Interactive Mathematics Multimedia Learning Based on Ispring Presenter in Increasing Students' Interest in Learning Mathematics. Institute of Information and Computing in Energy, University Tenaga Nasional, Malaysia.*
4. *Ariani, N., & Haryanto, D. (2010). Multimedia Learning In Schools. Jakarta: Prestasi Pustaka*
5. *Arimi, K., & Mubarak A.A., (2014). Distance Learning. In ERPA International Congress on Education, ERPA Congress 2014, 6-87 152:82-88*
6. *Asyhar, R. (2012). Creatively Develop Learning Media. Jakarta.*
7. *Bekele, A. (2019). Investigating The Influence Of pre-Calculus Mathematics Refreshment Module To First Year Engineering Students In An Ethiopian University. Globish (An English-Indonesian journal for English, Education and Culture), 9(2). Retrieved from http://dx.doi.org/10.31000/globish.v7i276*
8. *Bilbao, P. B. (2015). Curriculum development for teachers. Quezon City, Philippines: Lorimar Publishing, Inc.*
9. *Bonk, Curt & Lee, Mimi & Kou, Xiaojing & Xu, Shuya & Sheu, Feng-Ru. (2015). Understanding the Self-Directed Online Learning Preferences, Goals, Achievements, and Challenges of MIT OpenCourseWare Subscribers. Educational Technology & Society. 18. 349-365.*
10. *Bozkurt, A., Akgun-Ozbek, E., Yilmazel, S., Erdogdu, E., Ucar, H., Guler, E., Sezgin, S., Karadeniz, A., Sen-Ersoy, N., Goksel-Canbek, N., Dincer, G. D., Ari, S., & Aydin, C. H. (2015). Trends in Distance Education Research: A Content Analysis of Journals 2009-2013. The International Review of Research in Open and Distributed Learning, 16(1). Retrieved from https://doi.org/10.19173/irrodl.v16i1.1953*
11. *Busstra, C., Feskens, E. J. M., Hartog, R. J. M., Van't Veer, P., and Kok, F.J. . (2011). Interactive digital learning material on collating evidence from human nutrition research. e-SPEN, Eur. e-J. Clin. Nutr. Metab., 3, 52-61.*
12. *Calderon, Jose F. Gonzales, Expectacion F. (2010). Methods of Research and Thesis Writing. Madaluyong Philippines: National Bookstore.*
13. *Churiyah M., Sholikhan, Filianti, & Dewi A.S. (2020). Indonesia Education Readiness Conducting Distance Learning in Covid-19 Pandemic Situation 2020. Retrieved from http://dx.doi.org/10.18415/ijmmu.v7i6.1833 2020*
14. *Chuttur, M.Y. (2009). Overview of the Technology Acceptance Model: Origins, Developments and Future Directions, Indiana University, USA, Sprouts: Working Papers on Information Systems*
15. *Dane, F. C. (2005). Research Methods. Fourth Edition, USA: Brooks/Cole Publishing Company*
16. *Daniels J.S. (2002): "Foreword" in Information and Communication Technology in Education–A Curriculum for Schools and Programme for Teacher Development. Paris: UNESCO.*
17. *Danu D.K. (2012). Development of Sets Visioned Redox Reaction Teaching Materials, Constructivistic Orientation. Semarang: Universitas Negeri Semarang.*
18. *Daryanto, D. (2013). Media Learning. Yogyakarta: Gava Media.*
19. *Davis, F. D. (1989), "Perceived Usefulness, Perceived Ease Of Use, And User Acceptance Of Information Technology", MIS Quarterly, 13 (3): 319–340, doi:10.2307/249008, JSTOR 249008*
20. *DepEd Order No. 18, s. 2020. Policy Guidelines for the Provision of Learning Resources in the Implementation of the Basic Education Continuity Plan. Retrieved from https://www.deped.gov.ph/2020/07/20/july-20-2020-do-018-s-2020-policy-guidelines-for-the-provision-of-learning-resources-in-the-implementation-of-the-basic-education-continuity-plan/*
21. *Depdiknas. (2010). Teaching Material Development Guide. Jakarta: Ministry of National Education.*
22. *Diah Mulhayatiah D., Purwanti, P., Setya W., Suhendi, H.Y., Kariadinata R., & Sri Hartini. (2018). The Impact of Digital Learning Module in Improving Students' Problem-Solving Skills. Jurnal Ilmiah Pendidikan Fisika. https://doi.org/10.24042/jipfalbiruni.v8i1.3150.*
23. *Diederen, J., Gruppen, H., Hartog, R., Moerland, G., and Voragen, A. G. J. (2010). Design of Activating Digital Learning Material for Food Chemistry Education. Chemistry Education Practicum, 4, 353–371.*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

24. *Evaluation Of Blended Learning Approach In Computer Engineering Education. (2013). Procedia - Social And Behavioral Sciences, 141 (2014) 807 – 812.*
25. *Fausih, & Tandionomanu, M. (2015). Development Electronic Module as A Media for Subjects Productive Installing LAN for Participants Class XI Department of Computer Network Engineering at SMK Negeri 1 Labang Bangkalan Madura.*
26. *Griffiths, B. (2016). A Faculty's Approach to Distance Learning Standardization. Teaching and Learning in Nursing, 11(4), 157–162. Retrieved from https://doi.org/10.1016/j.teln.2016.04.004*
27. *Gunawardhana, D. (2020). Review of E-Learning as a Platform for Distance Learning in Sri Lanka. In: Education Quarterly Reviews 3(2), 141-145*
28. *Hamidi, S. (2012). Designing Teaching and Learning Activities so Entertaining, The Edudtaintment Method Makes Students Creative and Comfortable in Class. Yogyakarta: Divapress.*
29. *Hsieh, W.M. & Tsai, C.C. (2017). Taiwanese High School Teachers' Conceptions of Mobile Learning. Computers & Education, 115, 82–95. Retrieved from https://doi.org/10.1016/j.compedu.2017.07.013*
30. *Introduction to Computer Assisted Learning (CAL). (2016). Retrieved from Resources.intenseschool.com: https://resources.intenseschool.com/introduction-to-computer-assisted-learning-cal/*
31. *Irfan, A., & Puput W.R. (2014). Development of Learning Modules in Electromagnetic Field I Courses in the Department of Electrical Engineering, Surabaya State University. Journal of Electrical Engineering Education, 3(3).*
32. *Isnaeni, I. , & Agustina, Y. (2018). An Increase In Learning Outcome Students Is Through The Development Of Archive E-Module Based On The Flipbook With Discovery Learning Model. Admathedust, 6(11).*
33. *iSpring Presenter Reviews & Product Details. (2020). Retrieved from www.g2.com: https://www.g2.com/products/ispring-presenter/reviews*
34. *Jaenudin A., Baedhowi, & Murwaningsih, T. (2017). The Effectiveness of The E-Module of Economics Learning on Problem Based Learning Used To Improve Students Learning Outcomes. Advances in Social Science, Education and Humanities Research (ASSEHR), 158 (1). International Conference on Teacher Training and Education 2017 (ICTTE 2017).*
35. *Jonassen, D. H. (2014). Handbook of Research on Educational Communications and Technology, 2nd ed. Erlbaum, Mahwah, NJ.*
36. *Kalyuga, S., & Liu, T. C. (2015). Guest editorial: Managing cognitive load in technology-based learning environments. Educational Technology & Society.*
37. *Kebritchi, M., Lipschuetz, A. & Santiague, L. (2017). Issues and Challenges for Teaching Successful Online Courses in Higher Education: A Literature Review. Journal of Educational Technology Systems. 46(1): 4–29. DOI: 10.1177/0047239516661713*
38. *Kumar, P., Saxena, C. & Baber, H. Learner-content interaction in e-learning- the moderating role of perceived harm of COVID-19 in assessing the satisfaction of learners. (2021). Smart Learn. Environ. 8, 5 . https://doi.org/10.1186/s40561-021-00149-8*
39. *Lee, L.-T., & Hung, J. C. (2015). Effects of blended e-learning: A case-study in highereducation tax learning setting. Human-centric Computing and Information Sciences.*
40. *Li, C. , Lalani, F. (2020). The COVID-19 pandemic has changed education forever. This is how. Retrieved from Weforum.org: https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/*
41. *Markova, T., Glazkova, I. & Zaborova, E. (2017). Quality Issues of Online Distance Learning. 7th International Conference on Intercultural Education "Education, Health and ICT for a Transcultural World", EDUHEM 2016, 15-17 June 2016, Almeria, Spain. Procedia - Social and Behavioral Sciences 237(): 685 – 691.*
42. *Martin, F., Hoskins, O. J., Brooks, R., & Bennett, T. (2013). Development of an Interactive Multimedia Instructional Module. The Journal of Applied Instructional Design, 3(3).*
43. *Mayer, R. E. (2009). Multimedia learning (2nd ed). New York:Cambridge University Press.*
44. *Mathew, I., R. & Ebelelloanya, J. (2016). Open And Distance Learning: Benefits And Challenges Of Technology Usage For Online Teaching And Learning In Africa. Conference Proceedings & Working Papers. Pan-Commonwealth Forum 8 (PCF8). Retrieved from http://hdl.handle.net/11599/2543.*
45. *Meli, K., Zacharos, K., & Koliopoulos, D. (2016). The Integration of Mathematics in Physics Problem Solving : A Case Study of Greek Upper Secondary School Students. Canadian Journal of Science, Mathematics and Technology Education.*
46. *Mulenga, E. M. (2020). Is COVID-19 the Gateway for Digital Learning in Mathematics Education?ContemporaryEducationalTechnology.*
47. *Munir. (2013). Multimedia: Concepts and Applications in Education. Bandung: Alfabeta.*
48. *Musingafi M.C.C., M. B. (2015). Challenges for Open and Distance learning (ODL) Students: Experiences from Students of the Zimbabwe Open University. Journal of Education and Practice, 6(8).*
49. *Neumann, D. L. , Neumann, M. M., & Hood, M. (2011). Evaluating Computer-Based Simulations, Multimedia And Animations That Help Integrate Blended Learning With Lectures In First Year Statistics. Griffith University.*
50. *Ningrum, M., Dewi, N., & Parmin, P. (2018). Guided Inquiry-based Pop-up Module*

DevelopmentOn The Theme Of The Solar System For Class VII Of Junior High School. Jurnal Inovasi Pendidikan IPA, 4(1), 1-10.

51. *Nithyanantham, V. (2019). Integration of ICT for Transforming Education among the Non-Science Stream Pedagogical Learners. Universal Journal of Educational Research.*
52. *Norhapizah Mohd Burhan, Ab Halim Tamuri, Norazah Mohd Nordin, Khairul Husna Hj Abd Kadir. (2015). Acceptance towards Digital Learning Module based Blended Learning Strategy in Higher Learning Institutions: A case study from Malaysia. Australian Journal of Basic and Applied Sciences.*
53. *Noroozi, O., Busstra, M. C., Mulder, M., Biemans, H. J. A., Tobi, H., Geelen, M. M. E. E., … Chizari, M. (2012). Online discussion compensates for suboptimal timing of supportive information presentation in a digitally supported learning environment. Educational Technology Research and Development.*
54. *Nurlaini. (2017). Development of WxMaxima Software Assisted Calculus II Module in the Mathematics Education Studies Program. Universitas Syiah Kuala Thesis.*
55. *Parreno E.B. & Jimenez R.O. (2006). Basic Statistics A Work Text , Manila: C & E Publishing Inc.*
56. *Pombo, L. M. (2015). An evaluation model for quality assurance of blended learning:Exploring the lecturers' perspectives. Springer Science and Business Media.*
57. *Prasmala E.R., & Tanggu E.D. (2020). Needs Analysis of Digestive System Module Development with Make a Match Learning Model Based on Digital Daily Assessment. PEDAGOGIA: Jurnal Pendidikan. https://doi.org/10.21070/pedagogia.v9i1.266.*
58. *Pratita, D., & Djahir, D. (2020). Analysis of Students Needs for Teaching Materials as A Reference for Developing E-Module of Digital Learning Courses. Advances in Social Science, Education and Humanities Research 513 (4). Sriwijaya University Learning and Education International Conference (SULE-IC 2020)*
59. *Pupitasari, D. E., Amin, M., & Lukiati, B. (2016). Development of Textbooks in Cell Biology Based In Silico. Journal of Education: Theory, Research, and Development, 1(9), 1836–1847.*
60. *Purnawati, R. (2017). Development Of Interactive Learning Module In Computer Accounting Subject To Improve Student Motivation Of Class Xi Ak 1 In Smk Negeri 1 Yogyakarta. Jurnal Pendidikan Bisnis dan Manajemen, 4(3).*
61. *Puspandari, N., Widayati. (2019). Development Of Mathematics Module In Trigonometry Material Based On Discovery Learning For Grade 10th. Mathematics Education Study Program. Ahmad Dahlan University.*
62. *Ramnarain U. (2018). Coherence in the Teaching of South African Chemistry Lessons. In: Yeo J., Teo T., Tang KS. (eds) Science Education Research and Practice in Asia-Pacific and Beyond.Springer,Singapore.https://doi.org/10.1007/978-981-10-5149-4_12*
63. *Rufii, R. (2015). Developing Module On Constructivist Learning Strategies To Promote Students' Independence And Performance. International Journal of Education, 7(1), 18–28.*
64. *Sari F.K., Farida & Syazali, M. (2016). Pengembangan Media Pembelajaran (Modul) Berbantuan GeoGebra pokok bahasan Turunan Al-JabarJurnal Pendidikan Matematika 7 .*
65. *Sevilla, Consuelo G. et. al (2001). Research Methods, Quezon City: Rex Printing Co.*
66. *Schnotz, W. (2012). Towards An Integrated View of Learning from Text and Visual Displays. Educational Psychology, 14, 101–120.*
67. *Suratno, T. (2014). The Education System in Indonesia at a Time of Significant Changes. Revue internationale d'éducation de Sèvres. Retrievedfromhttp://journals.openedition.org/ries/3814*
68. *Suryani, A.I., Anwar, Hajidin & Rofiki. (2020). The Practicality Of Mathematics Learning Module On Triangles Using Geogebra. Mathematics Education.*
69. *Sutiah, S., Slamet, S., Shafqat, A. & Supriyono, S., (2020). Implementation of distance learning during the COVID-19 in Faculty of Education and Teacher Training. Cypriot Journal of Educational Science. 15(5), 1204 - 1214. https://doi.org/10.18844/cjes.v15i5.5151*
70. *Sutrisno, D. (2015). Engaging E-Lectures Blended Course With Problem Based Learning Activities At A Developing University. Ma'arif Nahdlatul Ulama University Of Kebumen Indonesia .*
71. *Ulfa, A. M., Sugiyarto, K. H., & Ikhsan, J. (2017). The Effect of the Use of Android-based Application in Learning Together to Improve Students' Academic Performance. Retrieved from https://doi.org/10.1063/1.4983910*
72. *Wang, R., Mattick, K., & Dunne, E. (2010) Medical Students' Perceptions Of Video-Linked Lectures And Video-Streaming, ALT-J, 18:1, 19-27, DOI: 10.1080/09687761003657622*
73. *Wena,M., (2013). Contemporary Innovative Learning Strategies: An Operational Conceptual Review. Jakarta: Bumi Aksara*
74. *Wong, J., Baars, M., Davis, D., Van Der Zee, T., Houben, G.J., & Paas, F. (2019). Supporting Self-Regulated Learning in Online Learning Environments and MOOCs: A Systematic Review. International Journal of Human–Computer Interaction, 35(4–5), 356–373. Retrievedfromhttps://doi.org/10.1080/10447318.2018.1543084*
75. *Wylie, R., Chi M. (2014). The self-explanation principle in multimedia learning. New York, NY, US: Cambridge University Press.*
76. *Yeh, Charles & Cheng, Hercy & Chen, Zhi-Hong & Liao, Chang-Yen & Chan, Tak-Wai. (2019). Enhancing achievement and interest in mathematics learning through Math-Island. Research and Practice in Technology Enhanced Learning. 14. 10.1186/s41039-019-0100-9.*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 7| Issue: 9| September 2021|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2021: 8.047 || ISI Value: 1.188

77. *Yigit, T., Koyun, A., Yuksel A., & Canknurlaya I. (2013). Evaluation Of Blended Learning Approach In Computer Engineering Education. Procedia - Social And Behavioral Sciences, 141 (2014) 807 – 812.*
78. *Yusuf, M. O. (2005). Information and communication technologies and education: Analyzing the Nigerian national policy for information technology. International Education Journal, 6(3), 316-321.*
79. *Yusof, Y. (2010). The Development of Instructional Module of Hybrid Approach Using Collaborative and Metacognitive (HybCoMet) Strategy as an Alternative Approach to Help Improving Generic Skills among Students in Malaysian Polytechnics. Citeweb. http://citeweb.info/20101451136*