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RESEARCH STATISTICS E-KIT AS A SELF LEARNING TOOL FOR QUANTITATIVE RESEARCH

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ABSTRACT

Statistics plays an important role in helping researchers and students who are conducting quantitative research studies. However, some researchers and students face problems identifying and understanding what type of statistics to use in data analysis to use conducting the research. This issue has caused problems with the research they are conducting, leading to errors. Due to the situation, we came out with a product named Research Statistics E-Kit. The purpose of this project is to assist researchers and students whom having difficulty determining which type of statistics to be used in data analysis in their quantitative research based on their objectives and sample group. The project's primary objectives are to design and develop the product along with implementation and evaluation whether the usage of the product meets the purpose. When the researchers use the Research Statistics E-Kit, we can see that the product managed to help researchers identify the type of statistics in their data analysis for their research. We gave out product evaluation questionnaire using 5 points Likert scale to 30 respondents. The results indicate a high level of evaluation for the product. We can conclude that Research Statistics E-Kit has fulfilled the needs and wants of the users as indicator of the type of statistics that needs to be used for quantitative research

Keywords: Statistics, Data Analysis, Quantitative Research, Researchers

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Introduction

Data analysis is important in research because it allows for easier and more accurate interpretation of study data. Data analysis is critical in research because it simplifies and improves data processing. It enables researchers to evaluate data in an easy manner, ensuring that nothing is overlooked that could aid in the discovery of new information. The researcher's judgement and competence are critical in obtaining the most accurate data analysis for their research. As a result, the method of calculation used for a particular study is determined by the researcher's understanding of the research conducted based on data analysis

One of the knowledge and skills required for analysis is in the field of statistics. Statistics is a branch of science concerned with the collection, compilation, analysis of data and the withdrawal of inferences from a sample to the entire population. This is important in a proper study design which requires selection of appropriate study samples and selection of appropriate statistical tests. Adequate statistical knowledge is essential to design a study properly. Incorrect statistical methods can result in incorrect conclusions in a study. The use of statistics in various research studies is important to ensure that research in interpreted according to the objectives outlined.

Problem Statement

According to Brown et al (2013), the current situation, with too much data, researchers and students had difficulty finding and understanding data analysis. This has caused some issues with their research, which may lead to error in Data Analysis. The lack of knowledge in statistics related to research further escalated the errors in Data Analysis. A survey was conducted to assess the statistical knowledge of data analysis among the researchers. According to the survey results, 56.7% stated their statistical knowledge in the low range, 23.3% in the medium range while only 20% were in the high range.

One of the ways that can be used to increase the knowledge of researchers regarding the use of statistics in research is by using a self-regulated learning kit. According to Sutikno (2015), Self-regulated in learning means the regulation of effort and cognition that occurs with the help of cognitive, metacognitive and materials (modules). Therefore, for learning by using a self-regulated Research Statistics E-kit can help users in deciding the appropriate statistics to use in the planned study for lecturers or students who are not proficient in statistics can learn at their own pace. Research Statistics E-kit can also be used as review material. for lecturers and students who want to be proficient in statistics.

Research Objectives

This Statistics Research E-Kit is specially developed to provide basic knowledge and use data analysis procedures using appropriate statistical methods. The main objectives of the research are: -

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Objective 1: To design and develop Research Statistic E-Kit

Objective 2: To implement and evaluate Research Statistic E-Kit.

Methodology

In this study, ADDIE Model is the method used as a framework in designing and developing the Research Statistic E-Kit. The "ADDIE" model stands for the Analysis, Design, Develop, Implement and Evaluate. The analysis section was given at problem statement analysing the statistics knowledge of the researchers. This design section outlines the steps involved in achieving the project's goals and strategies. The researchers will design the project using the Canva tool, which will allow them to generate a video and a template for it. The Balabolka software will be implemented as the basis for creating voice over audio for the video. The video editing software DaVinci Resolve 17 will also be used to convert the video and voice over audio into a single video for the project. The diagnostic test for the E-Kit is create using Google Form. There will 11 videos produced for this project, which were uploaded for the researchers:-

Video 1 : Introduction
Video 2 : What are statistics?
Video 3 : Research Design
Video 4 : Operational Variables and Definitions
Video 5 : Measurement Scale
Video 6 : Hypothesis
Video 7 : Statistics and Research
Video 8 : Distribution and Measurement of Central Tendency
Video 9 : Measures of Dispersion and Normal Distribution
Video 10 : Correlation
Video 11 : Inferential Statistics

For the implementation of Research Statistics E-Kit, YouTube channel was selected as a platform for students, lecturers, and researchers to use as a resource for their research work. The researchers will the go through the videos in the YouTube and conduct data analysis in their research work. Once, they have done their research work, they will evaluate the E-Kit using Google Form for Presentation, Learning Support, Multimedia Elements and Behaviourism Learning.

Findings

The E-Kit evaluation was analysed using a mean analysis. The mean was categorized into three categories which consist of low (1.00 – 2.33), medium (2.34 -3.67) and high (3.68 – 5.00) (Mohd Najib Abd Ghafar, 2003). The following table shows the result the evaluation for Research Statistics E-Kit.

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Evaluation Criteria	**Mean**	**Level**
Presentation	4.5349	High
Learning Support	4.5039	High
Multimedia Elements	4.6000	High
Behaviourism Learning	4.5116	High

From the table, it is indicated that all the criteria of the evaluation show a high level of evaluation. The Multimedia Elements criteria (Mean=4.6000) has the high level of evaluation. This is followed by Presentation (Mean=4.5349) and Behaviourism Learning (Mean=4.5116). The criteria which has lowest among the high level of evaluation is Learning Support.

Conclusion

The Research Statistics E-Kit, which was designed and developed using the ADDIE Model, shown a good influence on students, lecturers, and researchers' knowledge of how to use statistics in research. Additionally, the Research Statistics E-Kit YouTube Channel link would be further distributed to more researchers to increase the quality of research.

To further improve the research statistics, live chat room for students, lecturers, and researchers to ask questions or exchange information that other people could find useful in their future research will be created. More tempting elements to the video project, such as more engaging graphics and music, to make students, lecturers, and researchers feel more at ease and energetic when watching the video will also be added