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Refluent: Using Cartoons to Innovate Teaching of Sampling Techniques

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ABSTRACT

The traditional lecture is still one of the most common teaching methods since it has the advantage of being able to reach many students in one time slot. One of the main contributors to student boredom is the use of PowerPoint. The lecturers tend to prepare too many slides, pack them with too much information, and whizz through them in a manner that obliges students to spend most of the session attempting to copy amounts of text from the screen. Interactivity allows students to have an active role in the learning experience. Thus, our approach integrates cartoon-based infographics that simplify complex sampling methods, fostering a more engaging and interactive learning environment. Sampling aims to obtain a sample that reflects the population in terms of variables that are the researcher's focus. Therefore, a good sample selection is a sample that can represent the variable in question from the target population. There are two types of sampling procedures: 1) probability sampling and 2) non-probability sampling. Complex sampling categories make it difficult for students to understand the appropriate sampling method for their study. Most students like to choose a simple random sampling technique without realizing that this technique is not easy, and most students need help explaining the purpose of the technique during the viva presentation or in the thesis report. Refluent is a novel educational tool that uses cartoons to explain complex sampling techniques, enhancing student comprehension and engagement in research methodology courses.

Keywords: cartoons; educational innovation; sampling technique; research methodology.

1. INTRODUCTION

The study addresses the challenge of effectively teaching complex sampling techniques using traditional lecture methods, often leading to student disengagement and poor understanding. Infographics have become one of the most effective learning tools for communicating complex and abstract information to students (Sica et al., 2022). There are several reasons why infographics are a very effective learning tool. First, humans tend to process visual information more efficiently than text. Students are more likely to understand and remember information visually, such as through graphics, diagrams, or pictures (Ferreira et al., 2020). Second, infographics could simplify complex information (Alhadreti, 2021). Infographics allow students to dig up critical information without reading long texts. They can see the general picture and important details quickly. In addition, infographics allow students to compare information easily. A good infographic can display comparisons through graphs or tables. This helps students to understand the relationship between various elements or concepts. Cartoons are also the primary form of infographic communication, as an interpretation image that uses symbols to convey a message. Cartoons are a universal form of drawing that depicts everyday events and presents them funnily and humorously (Martzoukou, 2020). Cartoons have a unique

appeal and can influence the reader's attitude and behavior. Nowadays, the use of cartoons as entertainment and humor materials has proliferated through print or electronic media. Newspapers and magazines now provide cartoon sections alongside other articles to attract readers' interest and as an interlude to relieve tension. The research question for the study is "How do cartoon-based infographics impact student understanding and retention of sampling techniques compared to traditional lecture methods?" and the hypothesis is "Cartoon-based infographics will significantly improve student engagement and comprehension of sampling techniques over traditional lecture methods." The study contributes new insights into the use of visual aids in complex subjects since there is a lack of studies examining the usage of cartoon illustrations in the classroom. Although no empirical study proves the cause of the achievement of results for this subject, it is believed to be primarily driven by student interest. The results of this study can help various parties deal with the problems and issues of students' low motivation in the classroom. At that time, it can help educators realize appropriate teaching techniques to improve their teaching performance. Quality teaching and learning in higher education is fundamental to ensure that learning outcomes are achieved at the end of each program.

2. METHODOLOGY

This research instrument used is a survey approach. The population in this study is undergraduate students in the Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA (UiTM), who undertook research methodology subjects (ADS511, ADS651, and ADS555). The determination of the sample size was made based on the table made by Krejcie and Morgan (1970). At a population size (N) of 500, the sample size (n) is 217. The study employed a systematic sampling technique and data were analysed using descriptive statistics.

3. RESULTS AND DISCUSSION

Based on the survey results of 200 respondents, the results have revealed that the main problems faced by the students in learning research subjects, especially sampling techniques, are a lack of learning sources, interactive learning materials, boring teaching techniques, and lack of motivation (see Figure 1). The students also believed the teaching content needed to be interactive and exciting.

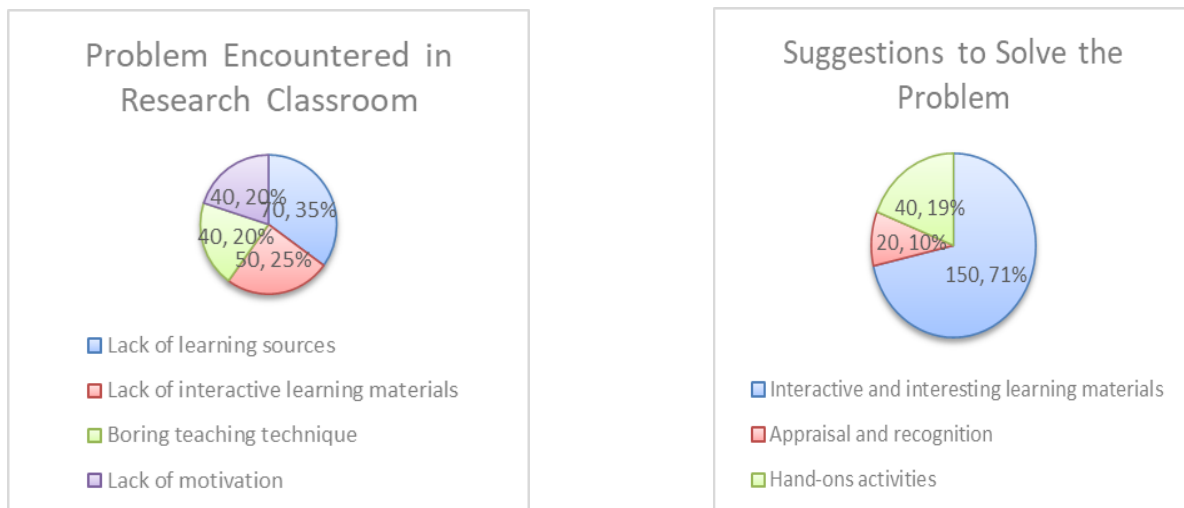


Figure 1. Pie Carts on Problem Identified and Suggestions

Thus, our group has created an innovative note that embedded cartoon illustrations to assist lecturers and students in understanding the sampling technique in research. Complex sampling categories make it difficult for students to understand the appropriate sampling method for their study. Most students like to choose a simple random sampling technique without realizing that this technique is not easy, and most students need help explaining the purpose of the technique during the viva presentation or in the thesis report. Therefore, this creative note is expected to help students and lecturers facilitate teaching and learning about sampling techniques. Figure 2 summarises the sample of the Refluent. Refluent is the first research teaching note-related cartoon, and most research methodology notes are textbooks and slides. The topics covered in the note are simple random sampling, systematic sampling, stratified sampling, cluster sampling, convenience sampling, purposive sampling, snowball sampling, and quota sampling. Many students think the subject of research methodology is challenging to master. If we look at any course offered at the university level, the research subject is a mandatory code taken by students either for undergraduate or postgraduate level. Refluent is expected to deliver new experiences in learning research subjects. Refluent can be commercialized and sold to educators and research practitioners at higher learning institutions.



Figure 2. Refluent (Source: Authors' work)

4. CONCLUSION

The study's findings have revealed that most students need more learning sources, interactive learning materials, boring teaching tech techniques lack of motivation. The students also alleged that the teaching contents must be interactive and exciting. Despite extensive research on infographics, researchers need to pay more attention to the potential use of cartoon illustrations as an information dissemination tool by educators in universities, particularly in Malaysia. More research on this topic is thus needed to determine how and why these means are used. The results indicate that simple cartoon infographics can help educators understand the research topics better. Using cartoons helps encourage and motivate the students to continue participating and interacting while having fun (Alhadreti, 2021). Thus, educators need to be creative and innovative in their teaching to ensure learning effectiveness.

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