



Knowledge Of Mobile Apps For Teaching Mathematics Among Mathematics Teachers At Higher Secondary Level

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ABSTRACT

This study investigates the familiarity and utilization of mobile applications for teaching mathematics among mathematics educators at the higher secondary level. With the increasing presence of smartphones and tablets, mobile apps have emerged as potential tools to enhance teaching and learning experiences, particularly in mathematics education. The research aims to assess the extent to which mathematics teachers are acquainted with, and incorporate, mobile apps into their instructional practices. The investigator has followed random sampling method for the present study. The investigator has collected a sample of 270 higher secondary mathematics teachers working in Madurai. The findings provide insights into the current status of mobile app usage in mathematics education, highlighting both the opportunities and challenges associated with integrating mobile technology into teaching practices at the higher secondary level. Thus the study reveals that, The knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level is average.

KEYWORDS: Mobile apps, Mathematics education, Higher secondary level, Teachers, Technology, Madurai district.

NEED FOR THE STUDY:

In recent years, advancements in technology have transformed the landscape of education, offering new tools and resources to enhance teaching and learning experiences.

Among these technologies, mobile applications have gained significant popularity due to their accessibility, versatility, and potential to engage learners in various subjects, including mathematics. Mobile apps offer interactive features, multimedia content, and real-time feedback, making them valuable assets for educators seeking innovative ways to deliver mathematical concepts. At the higher secondary level, where students are preparing for advanced academic pursuits or entering the workforce, the role of mathematics education becomes crucial. Mathematics teachers play a pivotal role in imparting mathematical knowledge and fostering critical thinking skills among students. Therefore, understanding the extent to which mathematics teachers utilize mobile apps for teaching mathematics is essential for enhancing instructional practices and improving student outcomes. This study aims to explore the knowledge of mobile apps for teaching mathematics among mathematics teachers at the higher secondary level. By examining teachers' familiarity with mobile apps, their perceptions of the effectiveness of these tools, and the challenges they face in integrating mobile technology into their teaching practices, this study seeks to provide valuable insights into the current state of mobile app usage in mathematics education, so the investigator to explore under the title "Knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level"

TERMS AND DEFINITIONS

- ✓ **KNOWLEDGE:** It refers to skills/information/facts that one gathers through education or experience.
- ✓ **MOBILE APPS:** It allows users to explore functions, providing graphical capabilities and offer many kinds of specific calculators.
- ✓ **TEACHING:** It refers to instruction by higher secondary mathematics teachers.
- ✓ **MATHEMATICS:** It refers to the science of structure, order, and relation that has evolved from counting, measuring, and describing the shapes of objects.

- ✓ **HIGHER SECONDARY STUDENTS:** It refers to the level of senior secondary or 11th and 12th standards in 10+2+3 system of education in India.

OBJECTIVES OF THE STUDY:

The study has formulated the following objectives

1. To find out the level of knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level.
2. To find out the significant difference in the level of knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level in terms of
 - i. Gender,
 - ii. Age,

HYPOTHESIS FORMULATED FOR THE STUDY

The hypotheses stated are as follows:

1. The level of knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level is average.
2. There is no significant difference in the level of knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level in terms of
 - i. Gender,
 - ii. Age.

INSTRUMENTATION:

The investigator developed and validated on “Knowledge of Mobile Apps for Teaching Mathematics at Higher Secondary Level”

ESTABLISHING THE VALIDITY OF THE TOOL

In order to establish the validity of the prepared tool, the investigator submitted the draft tool to the experts in the field of technology and higher secondary mathematics teachers for suggestions and modifications. After studying the draft tool, the experts gave some suggestion to modify certain items. The investigator carried out those changes in the draft tool and established the validity of the tool prepared.

ESTABLISHING THE RELIABILITY OF THE TOOL

The tool was administered among 50 higher secondary mathematics teachers. After a gap of 30 days the test was re-administered among the same 50 higher secondary mathematics teachers. Pearson’s product moment correlation was applied to the scores. The correlation value out was 0.94. It is a high level of correlation. So the reliability of the tool was ensured.

SCORING

The tool is having 35 multiple choice items. The correct response was given 1 mark. The maximum mark will be 35.

SAMPLE DESIGN:

The investigator has followed random sampling method for the present study. The investigator has collected a sample of 270 higher secondary teachers working in Madurai District.

ANALYSIS

HYPOTHESIS 1S

The level of knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level is average.

TABLE 1: DESCRIPTIVE ANALYSIS FOR KNOWLEDGE OF MOBILE APPS FOR TEACHING MATHEMATICS AMONG MATHEMATICS TEACHERS AT HIGHER SECONDARY LEVEL

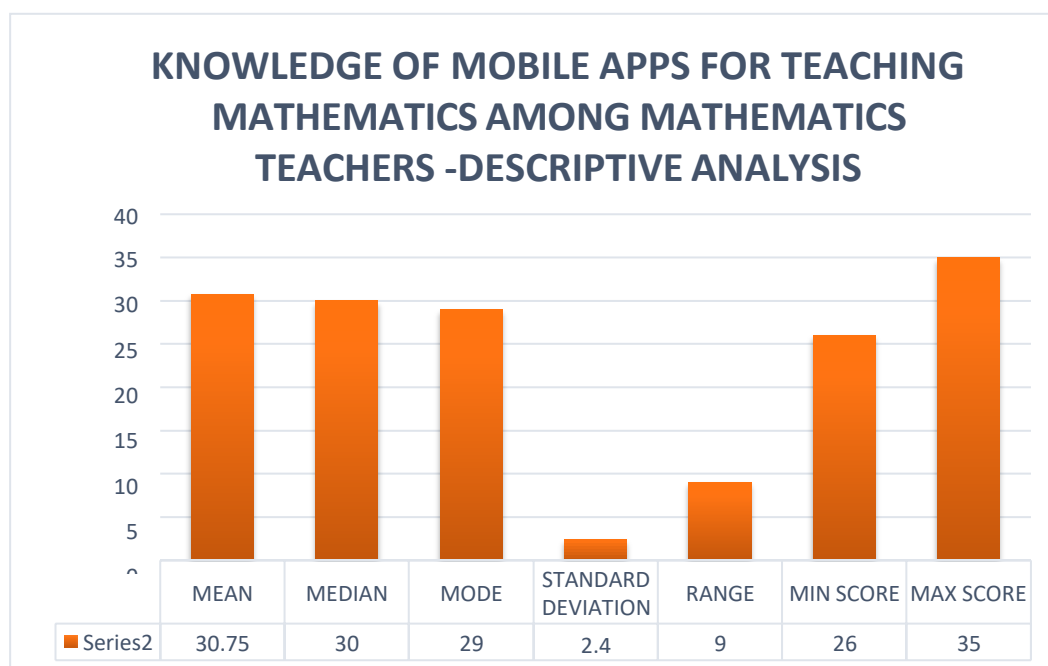
S. No	Description	Knowledge of Mobile Application
1	N	270
2	Mean	30.75
3	Median	30
4	Mode	29
5	Standard Deviation	2.40
6	Range	9
7	Minimum Score	26
8	Maximum Score	35

It is evident from Table 1, that the median and mode values for the knowledge of mobile application for teaching

mathematics among mathematics teachers at higher secondary level are 30 and 29 respectively. The highest score is 35 and the lowest score is 26. The mean value obtained is 30.75 with standard deviation of 2.40. It is well above the theoretical mean of 29.01. It is proved from the above table that the mathematics teachers at higher secondary level are having knowledge of mobile application for teaching mathematics at high level. So, the hypothesis stated as "The level of knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level is average" is rejected.

It may be concluded from the above that the level of knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level is high.

FIGURE 1: BAR DIAGRAM SHOWING KNOWLEDGE OF MOBILE APPS FOR TEACHING MATHEMATICS AMONG MATHEMATICS TEACHERS AT HIGHER SECONDARY LEVEL - DESCRIPTIVE ANALYSIS



TEACHING MATHEMATICS -INFERENTIAL ANALYSIS

Inferential analysis always involves the process of sampling and the selection of a small group assumed to be related to the population from which it is drawn. The small group is known as the sample, and the large group is population. Drawing conclusions about populations based on observations of samples are the purpose of inferential analysis.

DIFFERENTIAL STUDIES

The dependent variable knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level in terms of various subgroups of the sample is presented here.

DEGREES OF FREEDOM

The number of degrees of freedom in a distribution is the number of observations (or) values that are independent of each other that cannot be deducted from other. The number of degrees of freedom for the significance of difference between the means of two independent groups would be $N_1 + N_2 - 2$

HYPOTHESIS 2

There is no significant difference in the knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level in terms of Gender.

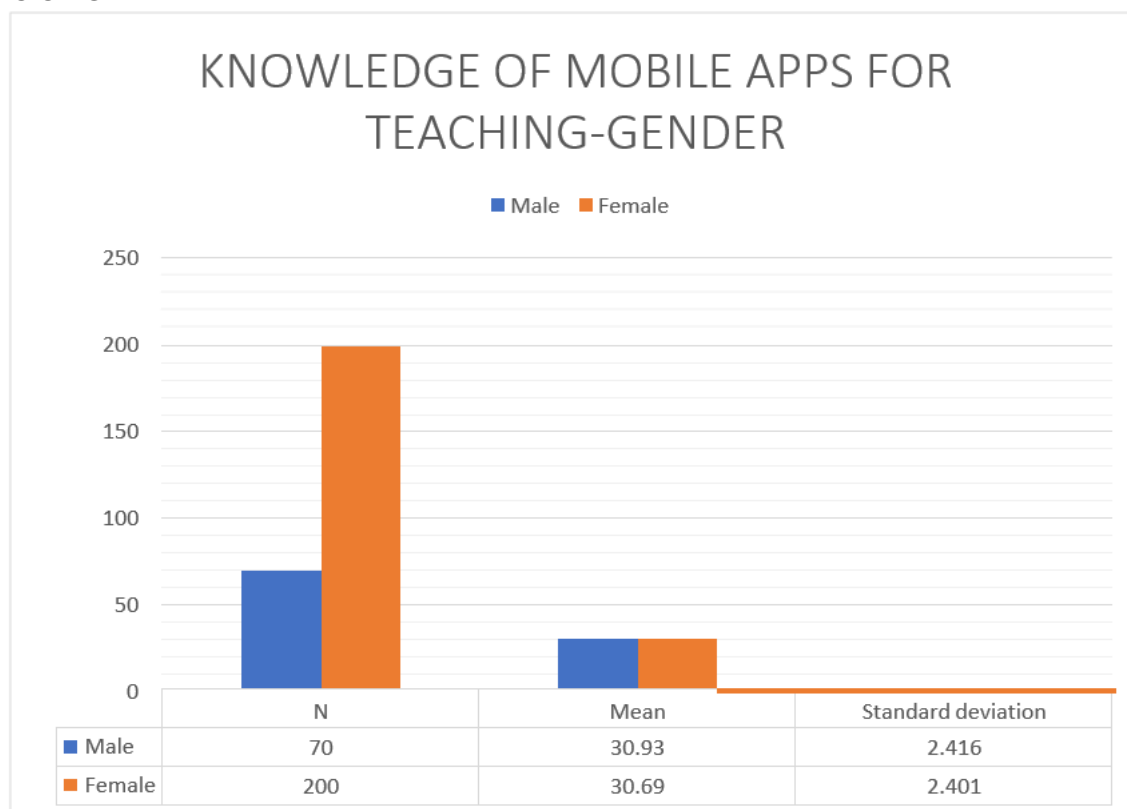
TABLE 2 MEAN, S.D. AND 't' VALUE FOR KNOWLEDGE OF MOBILE APPS FOR TEACHING MATHEMATICS AT HIGHER SECONDARY LEVEL IN TERMS OF GENDER

Gender	N	Mean	Standard deviation	Calculated 't' value	Table 't' value at 5% level	Remarks
Male	70	30.93	2.416	0.973	1.96	Not Significant
Female	200	30.69	2.401			

It is evident from Table 2, that the obtained 't' value is 0.973. It is lower than the critical value of 1.96. It is not significant. Hence the hypotheses stated as 'there is no significant difference in the knowledge of mobile apps for teaching mathematics at higher secondary level in terms of gender' is accepted. The mean value of female higher secondary teachers on knowledge of mobile apps for teaching mathematics is 30.69. It is lower than the mean value of male higher secondary teachers on knowledge of mobile apps for teaching mathematics that is 30.93. It is inferred from the above that the male higher secondary teachers on knowledge of mobile apps is better compared to knowledge of mobile apps for teaching mathematics of female higher secondary teachers.

It may be concluded from the above table that there is no significant difference in the knowledge of mobile apps for teaching mathematics at higher secondary level in terms of gender. The level of knowledge of mobile apps for teaching mathematics among the male higher secondary teachers on knowledge of mobile apps is better compared to knowledge of mobile apps for teaching mathematics of female higher secondary teachers.

FIGURE 2 BAR DIAGRAM SHOWING THE SIGNIFICANT DIFFERENCE FOR KNOWLEDGE OF MOBILE APPS FOR TEACHING MATHEMATICS AT HIGHER SECONDARY LEVEL IN TERMS OF GENDER



HYPOTHESIS 3

There is no significant difference in the knowledge of mobile apps for teaching mathematics among mathematics teachers at higher secondary level in terms of Age.

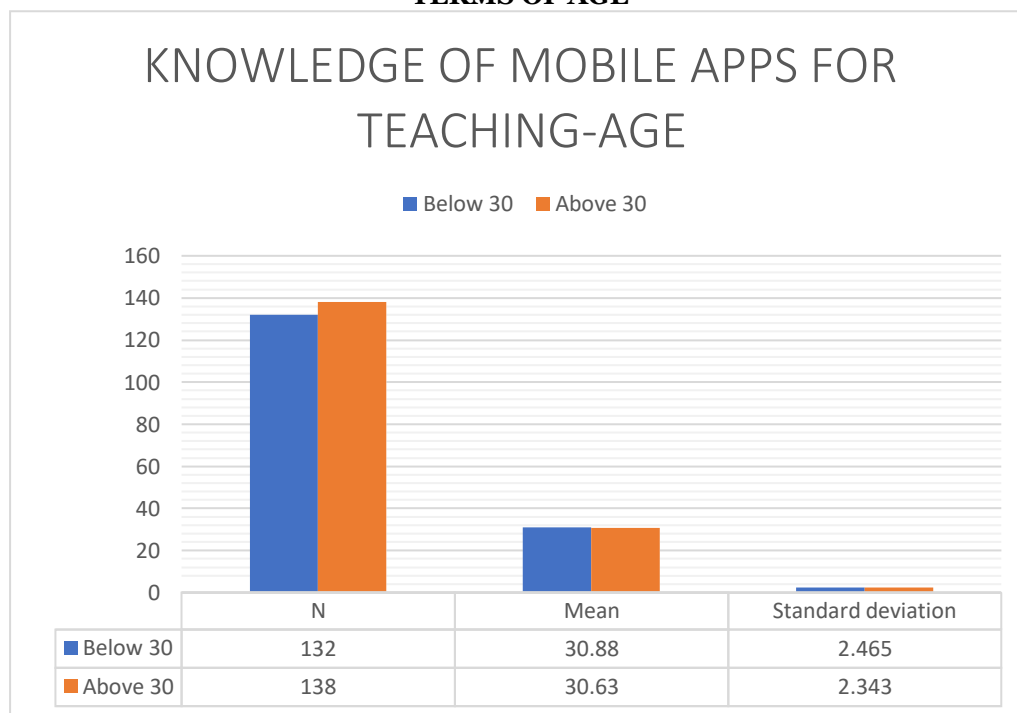
TABLE 3 MEAN, S.D. AND 't' VALUE FOR KNOWLEDGE OF MOBILE APPS FOR TEACHING MATHEMATICS AT HIGHER SECONDARY LEVEL IN TERMS OF AGE

Age	N	Mean	Standard deviation	Calculated 't' value	Table 't' value at 5% level	Remarks
Below 30	132	30.88	2.465	0.552	1.96	Not Significant
Above 30	138	30.63	2.343			

It is evident from Table 3 that the obtained 't' value is 0.552. It is lower than the critical value of 1.96. It is not significant. Hence the hypotheses stated as 'there is no significant difference in the knowledge of mobile apps for teaching mathematics at higher secondary level in terms of age' is accepted. The mean value of age above 30 higher secondary teachers on knowledge of mobile apps for teaching mathematics is 30.63. It is lower than the mean value of below age 30 higher secondary teachers on knowledge of mobile apps for teaching mathematics that is 30.88. It is inferred from the above that the age of below 30 higher secondary teachers on knowledge of mobile apps is better compared to knowledge of mobile apps for teaching mathematics of above 30 age of higher secondary teachers.

It may be concluded from the above table that there is no significant difference in the knowledge of mobile apps for teaching mathematics at higher secondary level in terms of age. The level of knowledge of mobile apps for teaching mathematics among the age of below 30 higher secondary teachers on knowledge of mobile apps is better compared to knowledge of mobile apps for teaching mathematics age of above 30 higher secondary teachers.

FIGURE 3 BAR DIAGRAM SHOWING THE SIGNIFICANT DIFFERENCE FOR KNOWLEDGE OF MOBILE APPS FOR TEACHING MATHEMATICS AT HIGHERSECONDARY LEVEL IN TERMS OF AGE



FINDINGS OF THE STUDY:

The findings of this study will provide insights into the current state of mobile app usage for teaching mathematics among mathematics teachers at the higher secondary level. The data will reveal the extent of teachers' familiarity with mobile apps, the types of apps they use, and their perceptions of the benefits and challenges associated with app integration. The data will offer deeper insights into teachers' experiences, attitudes, and instructional strategies regarding mobile app usage.

CONCLUSION

This study contributes to our understanding of the knowledge of mobile apps for teaching mathematics among mathematics teachers at the higher secondary level. By examining teachers' familiarity with, and utilization of, mobile apps, as well as the challenges and opportunities associated. This study offers valuable insights for enhancing mathematics instruction in the digital age. Ultimately, the effective integration of mobile technology has the potential to enrich the teaching and learning experience, empower teachers, and improve student outcomes in mathematics education.

EDUCATIONAL IMPLICATIONS

Knowledge of mobile apps for teaching mathematics can serve as a valuable professional development opportunity for mathematics teachers. Training programs and workshops can be organized to familiarize teachers with effective strategies for integrating mobile technology into their instructional practices. By equipping teachers with the necessary skills and knowledge, educational institutions can promote innovation and excellence in mathematics education.

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