Construction And Validation of College Teachers' Usage of Smartboards For Teaching

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Abstract: The present study was undertaken to construct and validated of College Teachers' usage of Smartboards for Teaching among College Teachers' in Ariyalur District, Tamil Nadu. Initially 83 items were framed by reviewing related literature, which is given to experts for analysing the content. Based on experts' opinion 20 items were deleted. After preliminary try out and item analysis only items with "t" value greater than 1.75 was selected. The end of analysis 4 items were eliminated. The final form of the scale thus consists of 56 items and it was found to be relatively high. Content validity and face validity was also ascertained.

Keywords: Validity, Reliability, Smartboards, Content Validity, Face Validity.

Introduction

Smartboards, also known as interactive whiteboards, have emerged as transformative tools in educational settings, revolutionizing traditional teaching methods. Smartboards represent a technological advancement that has significantly altered the landscape of education. The evolution of traditional chalkboards to interactive whiteboards has provided educators with a powerful tool for enhancing classroom dynamics. The inception of smartboard technology can be traced back to the 1990s when companies like SMART Technologies introduced the first interactive whiteboards. Initially, these devices were primarily used for presentations in corporate settings. However, as technology advanced, smartboards found their way into educational institutions. Early smartboards were characterized by touch-sensitive surfaces that allowed users to interact with digital content. Over the years, technological improvements have led to the integration of features such as multi-touch capability, gesture recognition, and compatibility with various software applications. These advancements have enhanced the versatility of smartboards in educational settings, enabling teachers to create interactive and dynamic lessons.

The construction and standardization of the College Teachers' usage of Smartboards for Teaching scale it involves the following steps are

1.   Planning

2.   Preparation

3.   Try out

4.   Item analysis

5.   Final form of the test

Item Analysis

The next step in the validation of the usage of Smartboards for teaching Scale is to find out the 't' value for each item, which forms the basis for item selection in order to built up the final scale. The individual score for all the 100 college Teachers were ranked from the highest to the lowest scores. Then 27% of the subjects with the highest total scores and 27% of the lowest total scores were sorted out for the purpose of item selection.

Selection of Item

As per the procedure explained by Allen Edward (1957), the 't' value of each statement has been calculated. The statements with 't' value greater than or equal to 1.75 were selected and below 1.75 has been rejected for the final study. On the basis of calculation it is found that, all the statements have got 't' values greater than 1.75, hence, all the statements have got selected for the final study.

Table No. 1

Items analysis - Independent sample 't' test for the item selection

Item No.	t-value	Selected/Not Selected
1.	5.76	Selected
2.	5.34	Selected
3.	7.69	Selected
4.	6.28	Selected
5.	6.59	Selected
6.	5.51	Selected
7.	1.35	**Not selected**
8.	2.4	Selected
9.	8.23	Selected
10.	7.42	Selected
11.	3.02	Selected
12.	6.77	Selected
13.	7.09	Selected
14.	7.76	Selected
15.	6.19	Selected
16.	5.85	Selected
17.	6.81	Selected
18.	3.50	Selected
19.	8.20	Selected
20.	7.73	Selected
21.	8.96	Selected
22.	4.60	Selected
23.	6.34	Selected
24.	6.04	Selected
25.	3.93	Selected
26.	2.64	Selected
27.	5.03	Selected
28.	8.19	Selected

29.	5.95	Selected
30.	2.93	Selected
31.	5.45	Selected
32.	4.95	Selected
33.	6.66	Selected
34.	6.73	Selected
35.	8.86	Selected
36.	8.04	Selected
37.	4.18	Selected
38.	3.33	Selected
39.	6.66	Selected
40.	6.42	Selected
41.	5.46	Selected
42.	4.76	Selected
43.	5.87	Selected
44.	5.08	Selected
45.	7.88	Selected
46.	7.96	Selected
47.	6.58	Selected
48.	2.33	Selected
49.	6.06	Selected
50.	8.12	Selected
51.	6.34	Selected
52.	1.08	**Not selected**
53.	5.51	Selected
54.	1.51	**Not selected**
55.	6.77	Selected
56.	6.54	Selected
57.	5.93	Selected
58.	5.11	Selected
59.	7.19	Selected
60.	1.19	**Not selected**

56 statements with 't' values above 1.75 were selected for the final study.

Reliability &Validity

Reliability refers to the repeatability of findings. If the study were to be done a second time, if it yield the same results, then the instrument is considered to be reliable.

Validity refers to the credibility or believability of the research. For the purpose of establishing Reliability and Validity Index of Reliability and Index of Validity were worked out. Both the index of Reliability and Validity were subjected to 't' test separately. Its level of significance was fixed by employing the formula suggested by Allen Edwards (1969).

$$t = r \sqrt{n-2} / 1-r$$

Here r= reliability co-efficient and n= Number of sample t= test of significant.

Table No. 2

Index of Reliability Co - efficient

S.No.	Test	Number of sample	Index of Reliability	Level of significance
1.	Usage of Smartboards for teaching	100	0.84	0.01 Significance

Table No. 3

Index of validity co- efficient

S.No.	Test	Number of sample	Index of Validity	Level of significance
1.	Usage of Smartboards for teaching	100	0.91	0.01 Significance

Norms for the scores

 The norms were established for the Usage of Smartboards for teaching Scale.

Table No. 4

Norms for College Teachers' Usage of Smartboards for teaching Scores

S. No	Scores	Interpretation
1.	Above 84	High level of usage of Smartboards for teaching
2.	Between 56-84	Moderate level of usage of Smartboards for teaching
3.	Below 56	Low level of usage of Smartboards for teaching

Conclusion

Based on the study conducted in Ariyalur District, Tamil Nadu, the construction and validation of a scale to assess college teachers' usage of smartboards for teaching was meticulously undertaken. Initially, 83 items were formulated from a thorough review of related literature, but after expert analysis, 20 items were discarded. Subsequent preliminary tryouts and item analyses led to the elimination of an additional four items, leaving a final scale consisting of 56 items. The scale was determined to be relatively high in reliability, with both content and face validity ascertained.

Smartboards have revolutionized educational settings by transforming traditional teaching methods into more interactive and dynamic experiences. Originating in the 1990s for corporate presentations, smartboards have since evolved with advancements such as multi-touch capabilities and gesture recognition, making them invaluable in educational environments.

The process of constructing and standardizing the scale for assessing college teachers' usage of smartboards involved several key steps: planning, preparation, tryout, item analysis, and the finalization of the test form. These rigorous steps ensured the creation of a reliable and valid tool that reflects the current use and potential of smartboards in enhancing teaching methodologies among college teachers in Ariyalur District. This scale not only aids in understanding the integration of smartboard technology in teaching but also serves as a foundation for further research and development in educational technology.

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