The Use of Teaching Aids In Teaching and Learning Early Mathematics in Preschool: Validity and Reliability

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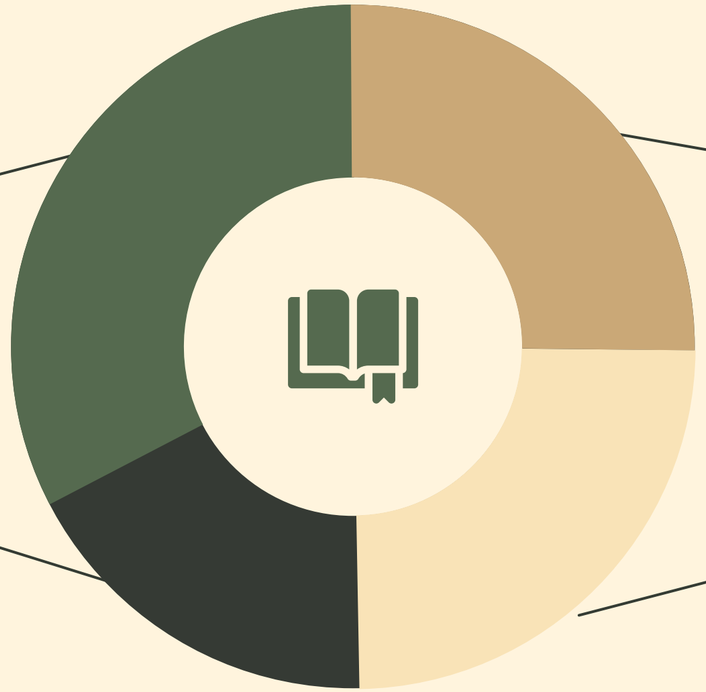


Background

Abdullah et al. (2021)	KSPK version 2017	Bakar and Alias (2021)	Ahmad and Md-Ali (2019)
Using teaching aids plays a significant role in ensuring that the teaching and learning process can be carried out effectively.	Early mathematics provides early experience, including pre-number experiences, number concepts, number operations, money, concept of time, and shape and space to preschool students.	Teachers face problems such as lack of knowledge and self-confidence in using teaching aids.	There are several constraints that arise in the development of teaching aids, including insufficient time, a shortage of resource materials, impracticality, heavy teaching workload, limited financial resources, and a lack of skills in creating teaching aids.

Study Objectives

To determine the validity of the instrument for The Use of Teaching Aids in Teaching and Learning Early Mathematics in Preschool based on expert approval.

To determine the reliability of the instrument for The Use of Teaching Aids in Teaching and Learning Early Mathematics in Preschool based on expert approval.

Methodology

Validity: Content Validity

Content validity index (CVI) is widely used index in quantitative evaluation to determine the relevancy of the scale. There are two types of CVI: I-CVI (item level) and S-CVI (scale level). Prior to the calculation of CVI, the scale is dichotomized by recoding all responses with 3 as 1 and all responses with 1 and 2 as zero. Where 1 means ‘relevant’ and 0 means ‘not relevant’

I-CVI = Experts in Agreement/ Total No. of experts
S-CVI = The average of proportion relevance scores across all experts.

Methodology

Reliability: Pilot Study

A pilot study is conducted to determine the study's reliability based on the Cronbach's Alpha value. A total of 21 respondents of Kuala Lipis district, Pahang, were selected as the pilot study sample to test the instrument's reliability.

Results and Discussion

No.	Item	Review
1	The instrument format is suitable and attractive.	Interesting and suitable.
2	Items measure the intended domains.	Suitable.
3	The language used is easily understandable.	Yes.
4	Font size is appropriate and easy to read.	Yes.
5	The meaning of each item is clear.	Clear.
6	Sufficient number of items.	Sufficient items.
7	Clear objectives.	Clear.
8	Clear instructions.	Clear.
9	Correct spelling.	Correct in terms of spelling.
	Overall Review	The proposed items are in line with the action research. Good luck and success.

Discussion:
The expert provided positive feedback, such as the instrument is interesting and suitable, the language uses is easily understandable and so on.

Results and Discussion

Section	Total Item	S-CVI / AVE
Section B: The Importance of Teaching Aids in Early Mathematics in Preschool	15	0.8
Section C: Contraits and Challenges Faced by Teachers in Using Teaching Aids in Preschool	10	0.9

Discussion:
The average results scale content validity index (S-CVI) of each expert review on the items ranged from 0.8 to 0.9, suggesting that no questions required repetition.

Content Validity

Results and Discussion

Section	Total items	Cronbach's Alpha Score	Interpretation
Section B: The Importance of Teaching Aids in Early Mathematics in Preschool	15	0.881	Good and acceptable.
Section C: Constraints and Challenges Faced by Teachers in Using Teaching Aids in Preschool	10	0.919	Very good and highly consistent and effective.
Overall Cronbach's Alpha Value		0.831	Good and acceptable

Discussion:

The Cronbach's Alpha for Section B is 0.881, and Section C is 0.919. This indicates that Section B is good and acceptable, while Section C is very good and highly consistent and effective. The overall Cronbach's Alpha value is 0.831, where all items are good and acceptable.

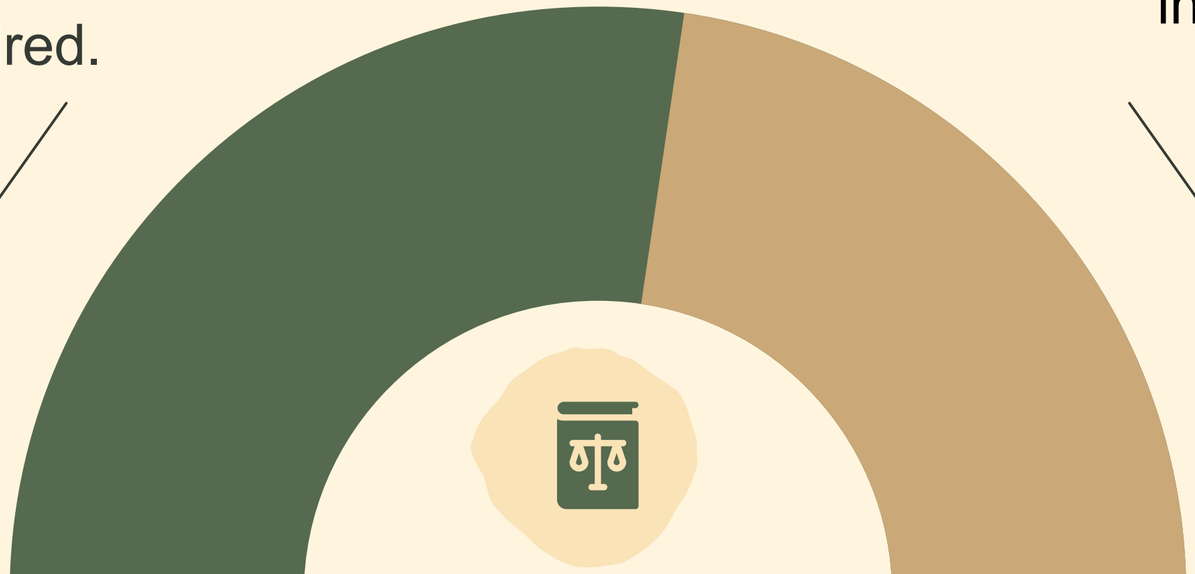
Discussion

Pilot Study:
According to Mohd Najib (1999), if the Cronbach's Alpha value is 0.8 to 1 then the instrument has a high reliability value and is an acceptable item.

Conclusion

The study found that the built instruments had achieved a high level of reliability (Cronbach's Alpha value = 0.831), all 25 items were suitable for use and no items needed to be repaired.

Instrument of The Use of Teaching Aids in Teaching and Learning Early Mathematics in Preschool has high validity and reliability and coincides to measure each domain in the instrument.



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Thank You