

CONTENT VALIDITY OF PHOSIK USING CVI METHOD

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Abstract: *This study aims to examine the content validity of PhoSIK for TESL pre-service teachers using the Content Validity Index (CVI). Seven experts were selected through sampling aimed at evaluating content consisting of three (3) professional university experts (in multimedia, digital, and psychometric learning) and three (3) subject experts from public education institutes. The instrument involves 73 items with three (3) main constructs. The results of the study show that the instrument has positive content validity and proves that PhoSIK has great potential to be promoted as a good instrument to measure the perception of pre-service TESL teachers towards essay writing in the future.*

Keywords: *Content Validity Index, Experts, PhoSIK, Digital Knowledge, Instrument*

Introduction

In 2015, The Economist introduced the concept of "Phono Sapiens" to describe a new species deeply connected to their smartphones. This species is characterized by their constant attachment to their smartphones, with the device becoming an integral part of their lives, akin to an innate organ. The term "phono" in the context of "Phono Sapiens" refers to the abbreviated form of the word "phone," which is commonly used to refer to smartphones or mobile phones. In this context, "phono" specifically denotes the connection and reliance on smartphones exhibited by individuals in the modern era.

Instrument can be defined as an adequate quantity of items to encompass essential elements of the concept being examined (Hoyt & Mallinckrodt, 2012). One crucial aspect of instrument development is the measurement of the instrument's content validity. Content validity ensures that the instrument is measuring what it wants to measure. Even if the instrument is reported as having good items, poor content validity will jeopardize the instrument's psychometric utility (DeVellis, 2017). Furthermore, content validation process will guarantee the instrument to have justifiable, rigorous, applicable, meaningful, and beneficial properties (Furr, 2020). Thus, the validation process should be done rigorously to develop one valid instrument.

Content validation is the first step in instrument validation, apart from construct and criterion validation (DeVellis, 2017). It refers to the evaluation for each item so that the item is suitable

with the instrument's development purpose. Two elements that are focused on the content validation process are the item's representativeness and suitability in measuring what the researcher intends to measure (Elangovan & Sundaravel, 2021). This study emphasized on one of the important steps in instrument development, which is assessing content validity using Content Validity Index (CVI).

This study employed CVI as part of validating the content. This step of validity used seven experts to assess the items on the instrument whether they had covered the appropriate content (Clark & Creswell, 2015). The chosen experts are professionals in their respective field, besides having number of publication and years of experiences. These experts were also willing to participate in this content validation process.

Literature Review

Phono Sapiens Independent Knowledge (PhoSIK)

"Phono Sapiens" is a term referring to a group of people who are identified by their reliance on smartphones or mobile phones. In this context, "phono" is an abbreviated form of "phone," specifically denoting smartphones or mobile phones. As a concept, "Phono Sapiens" likely represents a play on words, drawing a parallel between the species name "Homo sapiens" (the scientific name for modern humans) and the term "Phono Sapiens," suggesting that smartphone usage has become an integral part of modern human life (Suh, 2023).

Content Validity

DeVellis (2017) stated that content validity pertains to the sufficiency of item selection, ensuring that a particular group of items accurately represents the entire content domain. The process of measuring variables to determine whether the full domain of the conceptual variable has been adequately covered is known as content validity (Stangor, 2015). Assessing content validity becomes simpler when the content domain is clearly and precisely defined (DeVellis, 2017). This step of validity will employ experts to evaluate whether the items on the instrument covered the necessary content (Clark & Creswell, 2015). The review of a panel of experts will provide constructive feedback on the quality of the newly developed items. It can provide information on each item's representativeness and clarity.

There are two types of experts; professional and lay. "Professional" experts typically have specialized knowledge and training in a specific field, while "lay" experts may have practical knowledge or experience in a certain area but may not possess formal professional qualifications (Rubio et al., 2003; Zamanzadeh et al., 2015).

Content Validation Index (CVI) suggested by Lynn (1986) and Polit and Beck (2005) is one of several methods for verifying item content. Other examples of validity content measurements include Cohen's kappa (Cohen, 1960), Tinsley-Weiss T index (Tinsley & Weiss, 1975), rWG and rWG (J) indexes (James, Demaree, & Wolfs, 1993), and r*WG(J) (Lindell & Brandt, 1999). Therefore, the aforementioned validation tests are very complex to compute as its determination tables are not readily available.

CVI is a quantitative approach used to demonstrate that items and instruments meet content validity criteria, which also enables the assessment of item-level content validity (I-CVI) and instrument-level content validity (S-CVI). This study employed Content Validation Index (CVI) as part of validating the content. This step of validity used seven experts to assess the

items on the instrument whether they had covered the appropriate content (Clark & Creswell, 2015). The chosen experts are professionals in their respective field, besides having number of publication and years of experiences. These experts were also willing to participate in this content validation process.

Methodology

This study uses a purposive research method. Seven (7) professionals from public universities, the Malaysian Teacher Education Institute and the Hospital School, Universiti Kebangsaan Malaysia (SDHUKM) were selected as a sample. A draft instrument was prepared, and items were collected based on their subscales. A draft Digital Knowledge instrument was developed and presented to an expert panel of seven members. Since they were not in the same place, a draft of the instrument was sent to each of them and they answered and commented on each item listed. Drafts that initially contained different subscales for different variables were then mixed into a 10-point Likert scale because it offered greater variability (variance) when compared to a Likert scale of 1 to 5 or 1 to 7 (Simms et al., 2019). An independent variable is a factor that has an influence on the results of a study. In this particular research, the independent variable is "video," while the constructs under examination are "schema," "visualization," and "popular culture." Similarly, in the context of PhoSIK, the constructs being studied are "interests and experiences," "challenges and resources," and "perceived satisfaction." The dependent variable in this case is "Writing an English essay," and the constructs associated with it are "exposure," and "purpose and recognition." The distribution of these variables and their respective constructs can be found in Table 1.

Table 1: Distribution of Variable and Construct

No	Variable	Construct	No. of item
1	Video Climate	Schema	6
		Visualization	8
		Popular Culture	7
2	PhoSIK	Interest & Experiences	14
		Challenge & Resources	8
		Perceived Satisfaction	19
3	Perceived Writing Ability	Exposure	4
		Purpose & Recognition	7
Total			73

This instrument contains 73 items. The personal information section, which includes items related to the participant's habit of using mobile gadgets (frequency of using a mobile device in one day and one week), was placed at the end of the questionnaire to reduce participants' anxiety (Dörnyei, 2003). The participants were expected to spend around 25 to 30 minutes to complete the questionnaire, as they were familiar with the language and concept of video streaming in their perception of essay writing.

The development of items for this research was adopted from the STEM TIP Instrument Development Process (Ramli, 2019) which consists of ten steps. Then it was adapted (10 steps to 8 steps) to suit the needs of this research. These 8 steps are divided into 2 phases, namely the development phase and the validation phase. Figure 1 shows the 8 steps of the process carried out in this research.

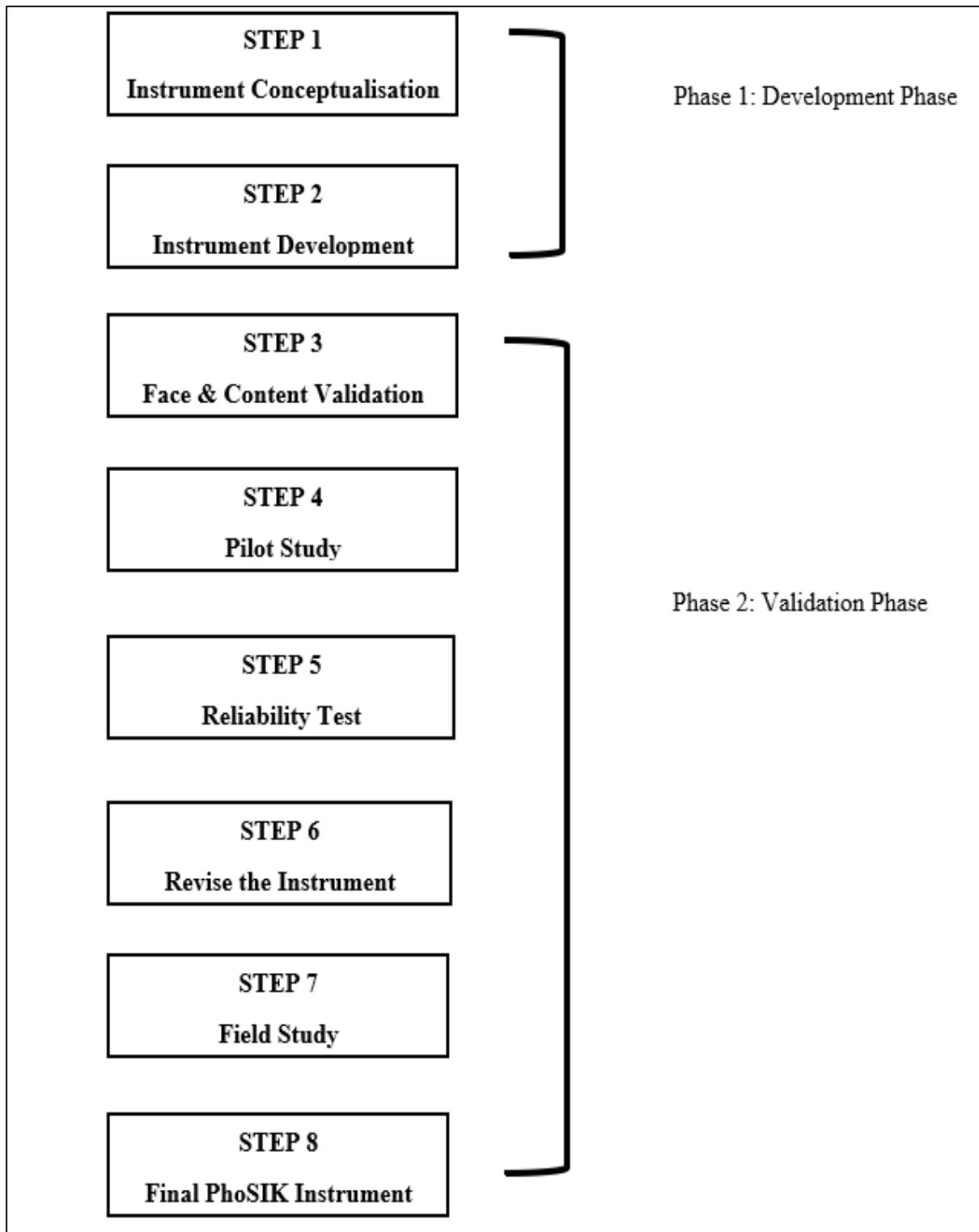


Figure 1: Item Development

23	PS9	1	Accepted
24	PS10	0.71	Refined
25	PS11	0.71	Refined
26	PS12	0.86	Accepted
27	PS13	1	Accepted
28	PS14	1	Accepted
29	PS15	1	Accepted
30	PS16	1	Accepted
31	PS17	1	Accepted
32	PS18	1	Accepted
33	PS19	1	Accepted
34	PC1	0.86	Accepted
35	PC2	1	Accepted
36	PC3	1	Accepted
37	PC4	1	Accepted
38	PC5	1	Accepted
39	PC6	1	Accepted
40	PC7	1	Accepted
41	IE1	1	Accepted
42	IE2	1	Accepted
43	IE3	1	Accepted
44	IE4	1	Accepted
45	IE5	1	Accepted
CVIcritical = 0.86			
(N = 7)			
Item	Code		Item Status
46	IE6	1	Accepted
47	IE7	1	Accepted
48	IE8	1	Accepted
49	IE9	1	Accepted
50	IE10	1	Accepted
51	IE11	1	Accepted
52	IE12	1	Accepted
53	IE13	1	Accepted
54	IE14	1	Accepted
55	R1	1	Accepted
56	R2	1	Accepted
57	R3	1	Accepted
58	R4	1	Accepted
59	Ex1	1	Accepted
60	Ex2	1	Accepted
61	Ex3	1	Accepted
62	Ex4	1	Accepted
63	Ex4	1	Accepted
64	CR1	1	Accepted
65	CR2	1	Accepted
66	CR3	1	Accepted
67	CR4	1	Accepted
68	CR5	1	Accepted
69	CR6	1	Accepted

70	CR7	1	Accepted
71	P1	1	Accepted
72	P2	1	Accepted
73	P3	1	Accepted

Discussion

This research on PhoSIK (Phono Sapiens Independent Knowledge) makes a significant contribution towards enhancing the essay writing skills of TESL pre-service teachers. PhoSIK provide a rich source of content that can spark ideas and inspiration for essay topics. Pre-service teachers can draw upon the themes, concepts, and issues from PhoSIK to develop thought-provoking essays. For instance, PhoSIK as in videos offer a visual medium for presenting information, which can enhance comprehension and retention of ideas. Pre-service teachers can watch educational videos related to their essay topics to gain a deeper understanding of the subject matter and incorporate visual elements into their writing.

Conclusion

The purpose of this research is to calculate the CVI value of newly developed PhoSIK instrument items. Only two out of 73 items fell below the set critical value, according to the estimated CVI value based on the rigorous evaluation of seven experts. It shows that PhoSIK has potentials to be valid and reliable instrument to measure the TESL pre-service teachers' perception of writing essay. The items will be refined based on suggestions and advice from the experts before being included in the pilot test instrument that will involve TESL pre-service teachers. The results of the test will then be tested using advance measurement model like EFA to ensure the quality of the items based on the Cronbach's Alpha value.

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