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Content Validity of Accounting Learning Self Efficacy Instrument Among Matriculation Accounting Students

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Abstract

In an era of rapid technological advancements, the efficacy of online learning tools and strategies is of paramount importance in education. This study aimed to evaluate the content validity of an instrument by assessing the content validity of an instrument developed to measure the Online Accounting Learning Self-Efficacy of Matriculation Accounting students in the context of a Flipped learning environment. The content validity evaluation was carried out employing Item Content Validity Index (I-CVI) and Scale Content Validity Index (S-CVI) methodologies. The instrument's content validity was evaluated based on the views of six experts. The utilization of an online platform for expert input collection via email exemplifies a contemporary and efficient research approach. In this study, two main constructs have been identified online self-efficacy and accounting learning self-efficacy consisting of 17 items. The Item Content Validity Index (I-CVI) ranged from 0.57 to a perfect score of 1.00, while the Scale Content Validity Index (S-CVI/AV) demonstrated strong content validity, with a value of 0.90 for the online self-efficacy construct and 0.86 for accounting learning self-efficacy. Notably, six items were excluded from the measurement instrument due to their lack of relevance, and two items underwent modifications to enhance precision and clarity. The overall S-CVI value of the online Accounting learning Self-Efficacy measurement instrument is 0.86. The findings of this research culminated in a compelling conclusion regarding the content validity of the Online Accounting Learning Self-Efficacy measurement instrument, affirming its utility as a reliable tool for assessing the self-efficacy of students engaged in online accounting learning within a Flipped Learning environment. Furthermore, the study extends an invitation for future research to use more in-depth statistical analysis, thereby providing a comprehensive evaluation of the validity and reliability of the constructs developed. In an educational landscape characterized by evolving technology-driven pedagogies, this research serves as a vital step toward enhancing the effectiveness of online accounting education.

Keywords: Content Validity, Construct Validation, Self-efficacy, Flipped Learning, Accounting

Introduction

The Malaysian Ministry of Education (KPM) through the seventh shift in the Malaysian Education Development Plan (PPPM) 2013-2025 intends to maximize the use of ICT to expand access to high-quality teaching regardless of location or student skill level. KPM is committed to supporting the implementation of new methods in blended learning such as Flipped Learning (Embi et al., 2014; Juliana et al., 2021). Flipped learning is an instructional method that can increase student involvement in the learning process, especially at the higher education level (Doo & Bonk, 2020). The KPM Matriculation Program as a pre-university institution to prepare students for higher education institutions needs to provide exposure in technological skills. Exposure at this stage can help students build self-confidence so that they can apply the use of technology in their learning while at university (Armizawani & Sharul Effendy, 2021).

Flipped learning involves online learning especially when carrying out activities before class that require a level of Self-Efficacy in motivating students to carry out online learning (Yavuzalp & Bahcivan, 2020; Zimmerman & Kulikowich, 2016). Accordingly, there is a need to identify instruments to measure the Self-Efficacy of online learning, especially in using technology, computers, and the internet that students need in learning activities. Next, educational institutions and instructors can determine the aspects that need to be given attention to be given training or encouragement to students to continue to be consistent in learning that involves the use of technology.

Content validity is defined as the extent to which elements of an assessment instrument are relevant and representative of the construct. In addition, the content validity process of subjective judgment of the content follows the correct procedure to describe the content domain using a set of representative items and assess whether the items are accepted by experts (Yusoff, 2019). Content validity ensures that the set of items is sufficient and can represent the concept to be measured because the more items that represent the domain or concept being measured, the greater the content validity (Sekaran et al., 2014). In other words, content validity is a function of the extent to which the dimensions and elements of a concept have been outlined. It is a process to ensure that the items used can represent the area of knowledge to be measured. Establishing content validity is important to support the validity of assessment tools such as questionnaires, especially for research purposes.

Problem Statement

Self-efficacy theory comes from psychological theory which presents a theoretical framework that explains changes in human behavior (Bandura, 2010). The concept of Self-Efficacy refers to a person's belief in his ability to organize and perform the actions required to achieve the performance determined for certain tasks (Bandura, 1997, 2006, 2010). In the context of the study, Self-Efficacy refers to Online Learning Self-Efficacy. Self-efficacy is a factor that is seen to influence learning motivation and academic achievement (Hamdan et al., 2021; Pintrich & De Groot, 1990; Schunk & Zimmerman, 2012; Zimmerman & Kulikowich, 2016). In addition, this self-assessment of Self-Efficacy can assess students' strengths and weaknesses and measure students' confidence levels to conduct online learning. Students do not necessarily have technological knowledge and skills even if they are seen as adept at using social media and other online platforms such as video games (Sun & Rogers, 2021). This is because online learning requires skills in using various technologies including online course management systems to navigate, evaluate and obtain information (Sun & Rogers, 2021). Therefore,

students' Self-Efficacy regarding the use of technology is a critical aspect in measuring students' readiness in a learning environment that involves the use of technology.

In addition, the self-efficacy constructs of online learning are computer self-efficacy and internet self-efficacy. Computer Self-Efficacy is an assessment of a person's confidence and ability in using a computer (Loar, 2017; Siti Fatimah et al., 2019). Students demonstrate that computer and technology skills are among the most important skills to achieve success in an online learning environment (Dunn, 2020). Next, Internet Self-Efficacy is a person's ability to consider the use of the Internet correctly and also the ability to use the Internet effectively (Intan et al., 2021). The use of the Internet has become one of the most widespread methods of accessing information, influencing the education system and teaching-learning activities (Intan et al., 2021; Yavuzalp & Bahcivan, 2020). Studies show that to increase students' confidence in online learning, their computer and internet skills should be improved (Zhu, 2019). Students who are proficient in using technology will give more confidence to students, especially in activities before class that use online learning (Shih et al., 2019). Accordingly, Self-Efficacy of online learning is a dimension that needs to be given attention because it is related to the learning process in a blended learning environment such as Flipped learning (Geng et al., 2019).

In addition, matriculated Accounting students also consist of students who do not have basic knowledge in Accounting. Studies show that students who are not from an Accounting background have a low level of motivation and have an inaccurate perception of the Accounting course (Madah Marzuki et al., 2020). This presents a challenge because Accounting learning is seen as unable to attract students' interest and satisfaction. Accordingly, Accounting self-efficacy in the Flipped learning environment is also an important element in providing confidence in one's ability to achieve the expected satisfaction and achievement of Accounting learning.

Flipped learning, especially activities before class, requires students to use learning materials found in online platforms (Rachmawati et al., 2019; Shih et al., 2019; van Tung et al., 2021; Zakaria et al., 2019). However, there are still students who lack confidence which causes a decrease in performance and less effort compared to students who have confidence that they have the ability to use technology in learning. In addition, there are also studies that show students who are less prepared and confident will not be able to survive in an online learning environment (Sun & Rogers, 2021). A study of Accounting students in Surabaya shows that Self-Efficacy has an impact on the learning outcomes of students who still seem passive and slow in completing assignments because there is still doubt about their ability to complete various learning activities. Although matriculation students are a digital generation who are knowledgeable in using social media, they do not necessarily have enough technological knowledge and skills in educational technology (North, 2019; Sun & Rogers, 2021). Accordingly, by applying Self-Efficacy in the Flipped learning environment can give confidence in one's ability to achieve satisfaction and expected achievements. Therefore, there is a need to measure the Self-Efficacy of online learning that includes various tasks required by students in successful learning activities.

Objective

This study aims to achieve the objective of evaluating the content validity of the Online Accounting Learning Self-Efficacy instrument (A-OLSES).

Methodology

Accounting Online Learning Self-Efficacy Instrument (A-OLSES) can be used as a self-assessment scale to assess students' strengths and weaknesses as well as measure students' level of confidence in learning accounting that involves the use of technology in Flipped learning. Accordingly, in developing the A-OLSES instrument, the items in Computer and Internet Efficacy (CISE) by Kim and Glassman (2013) found from the study by Intan et al. (2021), Learning self-efficacy found in MSLQ (Pintrich et al., 1993) and Online Learning Self-Efficacy Scale (OLSES) (Zimmerman & Kulikowich, 2016) were adapted and modified. This is because each individual from a different institution has different characteristics and needs a modified OLSES. The application for permission to use the instrument has been implemented and received via e-mail.

Content validity is assessed by experts through a subjective assessment of the items found in the instrument to meet the constructs that are to be evaluated and are suitable for the respondents who will use the instrument (Creswell & Creswell, 2018; Sekaran et al., 2014; Yusoff, 2019). Validity is handled by language experts and criterion validity is checked by experts in statistics. An expert panel can prove the validity of the instrument's content by going through an evaluation process that aims to analyze whether the constructed items can represent and evaluate the actual content or construct.

Accordingly, a content validation form is prepared by providing an operational definition for each domain to facilitate the evaluation process by experts. The next step is to select a panel of experts to evaluate and provide insight into the evaluation instrument based on expertise. The minimum acceptable number of experts is two and at least six experts but the number of experts for content verification should be at least 6 and not more than 10 (Yusoff, 2019).

Table 1
Number of experts and its implications on acceptable CVI scores

Number of Experts	CVI Value	Source
2 experts	At least 0.80	(Davis, 1992)
3 to 5 experts	1	(Polit et al., 2007; Polit & Beck, 2006)
6 experts	At least 0.83	(Polit et al., 2007; Polit & Beck, 2006)
6 to 8 experts	At least 0.83	(Lynn, 1986)
9 or more experts	At least 0.78	(Lynn, 1986)

(Yusoff, 2019)

In this study, experts evaluate the items based on the level of relevance of the items to the content. The questionnaire evaluation form will use 4 Likert scales to show the content validity index for each item (Item-Content Validity Index, I-CVI). Table 2 shows the definition of the score used to evaluate the I-CVI in the Expert evaluation form.

Table 2
I-CVI Instrument Evaluation score

Definition	**Score**
Not relevant	1
Less relevant	2
Relevant	3
Very relevant	4

Next, the CVI calculation will be carried out using MS Excel. There are two types of CVI namely I-CVI and S-CVI. This CVI calculation is based on the formula in Table 3:

Table 3
Definition of CVI Index with Calculation Formula

Indeks CVI	**Definition**	**Formula**
I-CVI (*item-level content validity index*)	The proportion of content experts who rated items as relevant with a rating of 3 or 4	I-CVI = (*agreed item)/(number of expert)*
S-CVI/Ave (*scale-level content validity index based on average method*)	The average I-CVI score for all items on the scale or the average of the relevant proportions rated by all experts. The relevance ratio is the average of the relevance ratings by individual experts.	S-CVI/Ave = *(sum of I-CVI scores)/ (number of items)* S-CVI/Ave = *(sum of proportion relevance rating)/(number of expert)*
S-CVI/UA (*scale-level content validity index based on universal agreement method*)		S-CVI/UA = (*sum of UA scores)/(number of item)*

(Sumber: Lynn (1986), Davis (1992), Polit & Beck (2006), Polit et al. (2007) & Yusoff, (2019))

Research Findings

A total of 7 experts were hired to implement the validity of this content. Selection of experts based on their expertise related to the research topic, having experience with the study population, having qualifications in the field of measurement and the field being studied (Davis, 1992). In this phase, the views and recommendations from experienced experts will be taken into account to evaluate the questionnaire concerning the understanding of the questions, the length of the questions, the clarity of the questions, and the layout of the scale. The expertise and experience of the appraiser is as shown in Table 4.

Table 4
Details of experts selected to assess content validity

Position	Organization	Expertise	Experience (Years)
Professor	Universiti Sultan Zainal Abidin	Management, Data analysis using SEM (Measurement)	More than 10 years
Senior lecturer	Universiti Pendidikan Sultan Idris	Self-regulated learning (SRL)	More than 10 years
Senior lecturer	Universiti Malaysia Pahang	Accounting	More than 10 years
Senior lecturer	Universiti Malaysia Pahang	Flipped Learning and English language	More than 10 years
Senior lecturer (Head of Department)	Kolej Matrikulasi Pulau Pinang	Accounting and Accounting education	More than 10 years
Senior lecturer	Kolej Matrikulasi Melaka	Accounting education	More than 10 years
Senior lecturer	Universiti Malaysia Pahang	Instructional Technology, M-Learning	More than 10 years

Next, to determine the reliability between experts achieved by using the Content Validation Index (Content Validation Index-CVI) the average value of the scale points will be calculated by adding up the scores given by each expert and dividing the value by the number of experts. Yusoff (2019) and Polit & Beck (2006)suggest the I-CVI value accepted between experts is 0.78. After calculating the content validation index for each I-CVI item, the next process is to calculate the content validation index for the scale (S-CVI). The calculation of S-CVI will be made using the following formula:

Average S-CVI = Total I-CVI / Number of items

The recommended S-CVI value is 0.8 for content validity (Lynn, 1986; Polit et al., 2007; Yusoff, 2019). The questionnaire scale reaches a satisfactory level of content validity if the calculations carried out show that I-CVI, S-CVI/Ave, and S-CVI/UA meet the minimum accepted values. Items can be modified or dropped if there are items that do not reach the required minimum level.

Content validity using CVI has a weakness due to the possibility of mutual agreement (possibility of chance agreement). This weakness can be overcome by calculating the Kappa coefficient to eliminate random chance agreement (Polit et al., 2007). The probability of agreement chance value (Pc) should be calculated first before the Kappa coefficient calculation is done, Pc = [N!/A! (N-A)!] X 0.5N. Where the value of N is the number of rating experts, and A is the number of experts who agree on the item. Therefore, the Kappa statistic coefficient value can be calculated using the formula, K= (I-CVI-Pc)/ (1-Pc). To evaluate the Kappa coefficient, a value greater than 0.74 is considered excellent, a value between 0.60 to 0.74 as good, and a value between 0.40 and 0.59 is reasonable (Martinez-Lopez et al., 2017; Polit et al., 2007).

The evaluation of each I-CVI item in Accounting Online Learning Self-Efficacy is done by appointed experts shown in Table 5 and Table 6. The calculation of the Kappa coefficient and the value of the Scale Content Validity Index per Average (S-CVI/Ave) is also shown.

Table 5
Expert evaluation of 18 items in the 'Online learning self-efficacy' dimension.

Online learning self-efficacy												
	Experts											
Item	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total Agreed (A)**	**I-CVI**	**Pc**	**Kappa**	**Assessment**
OLE1	1	1	1	1	0	1	1	6	0.86	0.0546875	0.85	Accepted
OLE2	1	1	1	1	1	0	1	6	0.86	0.0546875	0.85	Accepted
OLE3	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted
OLE4	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted
OLE5	1	1	1	1	0	0	1	5	0.71	0.1640625	0.66	Accepted
OLE6	1	1	1	0	1	0	1	5	0.71	0.1640625	0.66	Accepted
EI7	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted
EI8	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted
OLE9	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted
OLE10	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted
OLE11	1	1	1	0	1	0	1	5	0.71	0.1640625	0.66	Rejected
EI12	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted
OLE13	1	1	1	0	0	0	1	4	0.57	0.2734375	0.41	Rejected
EI14	1	1	1	1	0	0	1	5	0.71	0.1640625	0.66	Rejected
EI15	1	1	1	1	1	0	1	6	0.86	0.0546875	0.85	Accepted
EK16	1	1	1	1	1	0	1	6	0.86	0.0546875	0.85	Accepted
EK17	1	1	1	1	0	0	1	5	0.71	0.1640625	0.66	Modify
EK18	1	1	1	1	0	0	1	5	0.71	0.1640625	0.66	Rejected
								S-CVI/Ave	0.80			Accepted

S-CVI/Ave = 0.80 (diterima). I-CVI = *item content validity index*, Pc = *Probability of chance agreement*; S-CVI = *scale content validity index.*

Table 6
Expert evaluation of 6 items in the 'Accounting learning self-efficacy' dimension.

Accounting learning self-efficacy												
	Experts											
Item	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total Agreed (A)**	**I-CVI**	**Pc**	**Kappa**	**Assessment**
EP1	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted
EP2	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted
EP3	1	1	1	1	0	1	1	6	0.86	0.0546875	0.85	Accepted
EP4	1	1	1	1	1	0	1	6	0.86	0.0546875	0.85	Accepted
EP5	1	1	1	1	1	1	1	7	1.00	0.0078125	1.00	Accepted

EP6	1	1	1	1	0	0	1	5	0.71	0.1640625	0.66	Rejected
								S-CVI/Ave	0.90			Accepted

S-CVI/Ave = 0.90 (diterima). I-CVI = *item content validity index*, Pc = *Probability of chance agreement*; S-CVI = *scale content validity index.*

Table 5 shows the experts' evaluation of the 18 items in the Self-Efficacy dimension of online learning. The S-CVI/Ave value achieved for the entire dimension is 0.80. The evaluation shows that there are seven items that have a low I-CVI which is at 0.57 to 0.71. Table 6 shows the evaluation of experts on eight items in the Self-efficacy dimension of Accounting learning. The S-CVI/Ave value achieved for the entire dimension is 0.90. Only one item has a low I-CVI at 0.71. Table 7 summarizes the decisions that have been made on each item based on expert evaluation.

Table 7
I-CVI and S-CVI Formulations for the Online Accounting Learning Instrument (A-OLSES)

Construct	**Kod Item Code**	**I-CVI**	**Decision**
Online Learning Self-Efficacy	OLE1	0.86	Accepted
	OLE2	0.86	Accepted
	OLE3	1.00	Accepted
	OLE4	1.00	Accepted
	OLE5	0.71	Rejected
	OLE6	0.71	Rejected
	EI7	1.00	Accepted
	EI8	1.00	Accepted
	OLE9	1.00	Accepted
	OLE10	1.00	Accepted
	OLE11	0.71	Rejected
	EI12	1.00	Accepted
	OLE13	0.57	Rejected
	EI14	0.71	Rejected
	EI15	0.86	Accepted

Construct	Kod Item Code	I-CVI	Decision
	EK16	0.86	Accepted
	EK17	0.71	Accepted
	EK18	0.71	Modified
	S-CVI/Ave	0.80	Accepted
Accounting Learning Self-Efficacy	EP1	1.00	Accepted
	EP2	1.00	Accepted
	EP3	0.86	Accepted
	EP4	0.86	Accepted
	EP5	1.00	Accepted
	EP6	0.71	Rejected
	S-CVI/Ave	0.90	Accepted
	S-CVI/Ave (Keseluruhan)	0.86	Accepted

Discussion

Overall, the S-CVI value (average) for the online learning Self-Efficacy dimension was 0.80, and the Accounting learning Self-Efficacy dimension was 0.90. The recommended S-CVI value is 0.8 for content validity (Lynn, 1986; Polit & Beck, 2006; Rubio et al., 2003). All S-CVIs for each dimension in the measurement of Self-Efficacy of online Accounting learning meet the specified conditions. The overall S-CVI value of the online Accounting learning Self-Efficacy measurement instrument is 0.86. Therefore, the Self-Efficacy measurement instrument of students' online learning Accounting has high content validity.

Next, the I-CVI value of each item in the Student Accounting learning self-efficacy instrument is in the range of 0.57 to 1.00. According to Yusoff (2019), if there are six or more experts, the I-CVI threshold value must be at 0.83 and above. There are eight items that have an I-CVI value lower than 0.83; namely items OLE5, OLE6, OLE11, OLE13, EI14, EK17, and EK18 in the Self-Efficacy dimension of online learning with I-CVI values of 0.57 and 0.71 and one item EP6 of the Self-Efficacy dimension of Accounting learning with an I-CVI value of 0.71. Items OLE5, OLE6, OLE11, OLE13, EI15, and EP6 were dropped from the measurement instrument because experts thought the items were irrelevant and so the total number of items was smaller. However, items EK17 and EK18 have been modified according to the expert's opinion so that the items are accurate and clear. A total of 17 final items to measure students' online Accounting learning self-efficacy were retained for construct validity.

Study Implications

The validity of this content will help in obtaining the latest findings that are appropriate to the needs of research and education in the current context. Content validity affects the effort to obtain new constructs to form appropriateness with the local context that is valid and can be used to carry out the study. Content validity can be used as proof that the research developed is valid and reliable. This instrument is expected to make a contribution in the field of education especially for the Ministry of Education, Matriculation Division, and the specialized lecturers of the Accounting program to use it to measure the self-efficacy of online Accounting learning among students. The instrument that was developed is one of the contributions to the concerned parties in paying attention to assess students' confidence, especially in using technology in online learning. Indeed, this student's confidence is necessary, especially in today's needs that require students to use computer technology and the internet in today's learning environment. Students' confidence in using technology is expected to give satisfaction to students to continue using technology-based learning in the future.

Conclusion

Content validity can ensure that the items developed can be understood by the respondents, there are no repeated items, the use of accurate terms, the items achieve the objectives in the study and the items are relevant. Item content validity index (I-CVI) and scale content validity index (S-CVI) were used to assess content validity. The instrument's content validity was evaluated based on the views of six experts. Content validity assessment based on CVI (I-CVI & S-CVI) and Kappa coefficient shows high content validity. The findings of the study show that the instrument has good content validity and can be used to measure the self-efficacy of Accounting learning in the context of the Matriculation Accounting program and Flipped learning. Content validity for the development of an online Accounting Learning Self-Efficacy instrument (A-OLSES) has successfully developed 17 items that will be used in a pilot study to assess construct validity. In addition, the item reliability or consistency test will be a measure to identify the internal consistency of the item before using the Structural Equation Model (SEM) statistical analysis. Therefore, for this further study, it is necessary to measure construct validity and item reliability so that the instrument developed has high validity and reliability and is not disputed for the actual study.

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