

The Development and Validation of an Instrument to Evaluate Learning Activity Package in Advanced Accounting

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DOI: <https://doi.org/10.5281/zenodo.13325648>

Published Date: 15-August-2024

Abstract: This study focuses on developing and validating an instrument to evaluate the Learning Activity Package in College Advanced Accounting. The study was designed by adapting the instrument development process proposed by DeVellis (2017). The process involves eight steps that are grouped into two phases, namely, development and validation. Nine criteria and 53-item statements for evaluation of the Learning Activity Package (LAP) were crafted based on a literature review and focus group discussion of the accounting faculty. The instrument was tried out to 23 college students from various sections and programs within the BSBA department. The selection of participants for the pilot testing utilized a random sampling approach. The instrument was assessed for reliability and was found to have a Cronbach's alpha of 0.935 and is considered an excellent instrument. Meanwhile, the CVR was generated for each item. Items marked as not essential had a CVR < 0.99 (this value is based on the total number of experts, N = 4). The average CVR value was 0.65. The findings of this study support that a learning activity package (LAP) helps supplement student's independent learning and deserves more significant consideration in the academe to improve the teaching-learning process. Research findings revealed that the learning activity package is valid for college students, particularly at-home self-learning. It is also recommended to seek additional expert input to corroborate the results and enhance the reliability of the content validity assessment. Regularly evaluate and update the Learning Activity Package based on feedback from educators, students, and advancements in Advanced Accounting.

Keywords: instrument development, content validity, learning activity package.

1. INTRODUCTION

In educational literature, Learning Activity Packages (LAPs) represent indispensable supplementary learning resources that empower students to actively engage in personalized learning exercises. Faculty carefully designed these exercises to nurture and enhance the knowledge and skills acquired during their coursework. As a unique pedagogical approach, LAPs facilitate students' progression toward predefined educational objectives. A significant body of research has developed and validated survey instruments tailored for assessing the effectiveness, appeal, and efficiency of online training modules or instructional aids across diverse learning environments, both in workplaces and educational settings (Conceição et al., 2007). While numerous studies have been conducted to create and validate assessment tools for instructional materials (Ramli et al., 2020), it is essential to note that these efforts primarily pertain to learning materials designed and evaluated prior to the COVID-19 pandemic and are often limited to certain educational levels. Regrettably, there is a dearth of research, particularly within the Philippines, concerning the Development and Validation of an Assessment Instrument tailored for the unique context of Learning Activity Packages (LAPs) in Advanced Accounting. This research seeks to bridge this critical gap in the academic landscape by comprehensively exploring LAP assessment instruments and their relevance in the dynamically evolving educational environment.

2. RESEARCH PROBLEM

This study sought the following questions:

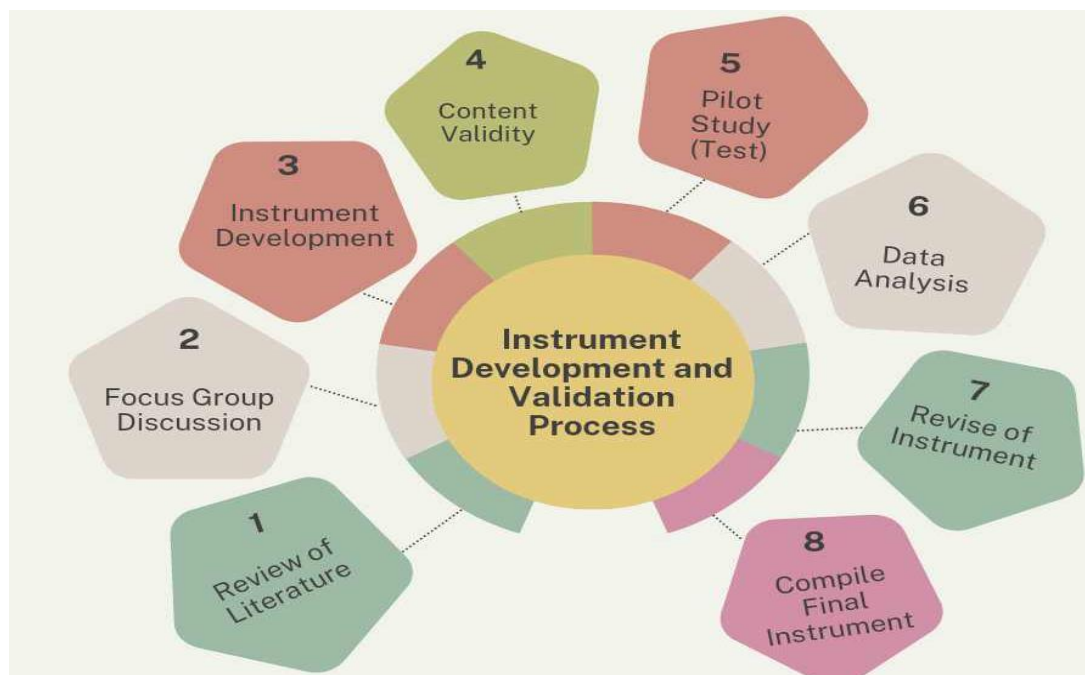
1. How can we create a tool to assess Learning Activity Package materials effectively?
2. How can learning activity package best be evaluated by the students?
3. Which aspects should be considered when evaluating learning activity packages in the context of Advanced Accounting?

3. METHODOLOGY

Design

The development and evaluation processes of an instrument in this study was designed by adapting the instrument development process proposed by DeVellis (2017), Nasab et al. (2015) and Miller et al. (2013). The process involves eight steps that are grouped into two phases namely, development and validation.

Figure 1. Instrument development and validation process



Phase 1: Development Phase

Phase one involves the analysis of literature review by researcher and through focus group discussion.

Locale

In developing the instrument, a focus group discussion initially conducted at Opol Community College.

Participants and Sampling

Three College Accounting faculty selected as members of the focus group. All the documents related to Learning Activity Package was analyzed by researcher and were discussed in focus group discussion.

Research Instrument

Nine criteria for evaluation of Learning Activity Package Printed were crafted based from literature review and focus group discussion with the Accounting faculty. Having 53 total items generated. The tool consists of 9 criteria and 53 statement-questions. The nine criteria are: 1)Measurability of Objectives (6 items); 2) Content (7 items); 3) Clarity and Readability (5 items); 4) Illustration of LAP materials (7 items); 5) Progression and sequencing of LAP material (7 items); 6)Legibility and Printing Characteristics (5 items); 7).Engagement and Accessibility (8 items); 8) Integration of Technology (4 items); Real-world Application (4 items).

Data Gathering Procedure

Before conducting this study, written approval from the college president was obtained. Participants got letters of consent prior to the commencement of data collection. Focus group discussions was conducted face to face with the accounting faculty's permission. The study also gathered information from literature review.

Data Analysis

Content analysis was employed to examine the interview data. Content analysis is valuable for identifying specific words, themes, or concepts within qualitative data, such as text. Through content analysis, researchers and participants can quantify and scrutinize the presence, significance, and connections of these particular words, themes, or concepts, such that, researcher and participants can assess the language employed in a specific instrument.

Phase 2: Validation Phase

The validation phase involves rigorous testing for both validity and reliability. Reliability refers to the consistency of measurements, ensuring that they yield dependable results each time they are used (Miller et al., 2013; Zainudin Awang, 2015; Nasab et al., 2015). In this case, instrument's reliability was assessed using the Cronbach Alpha alue. Conversely, validation is critical to confirm that developed instrument accurately measures its intended criteria. Validity extends to the instrument's ability to predict specific outcomes or its correlation with other constructs, all based on the scale's construction process (DeVellis, 2017).

Within the validation process, content validity was considered. Content validation involves ensuring that the variables comprehensively cover the entire domain being measured, a task often undertaken with the input of experts (Clark & Creswell, 2015; Stangor, 2015). During this phase, it is essential to clearly define the scale to facilitate the evaluation process (DeVellis, 2017).

Research Participants and Sampling

The instrument was tried out to a total of 23 students at Local Community College from various sections and programs within the BSBA department. The selection of participants for the pilot testing utilized a random sampling approach. It's important to note that the target population for this study encompasses all users of Learning Activity Package materials.

Research Instrument

Nine criteria for evaluation of Learning Activity Package Printed were crafted based on literature review and focus group discussion of the Accounting faculty. The tool consists of 9 criteria and 53 statement questions. The nine criteria are: 1)Measurability of Objectives (6 items); 2) Content (7 items); 3) Clarity and Readability (5 items); 4) Illustration of LAP materials (7 items); 5) Progression and sequencing of LAP material (7 items); 6)Legibility and Printing Characteristics (5 items); 7). Engagement and Accessibility (8 items); 8) Integration of Technology (4 items); and Real-world Application (4 items).

Data Gathering Procedure

A transmittal letter was sent to the four selected panelists, formally requesting their consent to partake as content validators. The content validators were provided with the necessary materials, including the instrument, evaluation sheet, and Learning Activity Package materials.

Data retrieval took place through onsite visits for internal validators and online channels for external validators. Following this, the researcher analyzed and processed the gathered data.

Data Analysis

To assess the content validity of the generated items, the researcher assembled a panel of four experts, consisting of two individuals from external institutions and two from within the school (Table 3). The perspectives offered by the experts were quantified using the Content Validity Ratio (CVR).

The CVR, as determined by the Lawshe test, is calculated to ascertain whether an item is indispensable for the effective functioning of a construct within a set of items. To calculate the CVR, each expert panelist assigned a score of 1 to 2 to each item, indicating its level of necessity—ranging from essential to not essential. The CVR formula is as follows: CVR

$= (N_e - N / 2) / (N / 2)$, where N_e represents the number of panelists indicating "essential," and N is the total number of panelists. The numeric value of CVR falls within the range of -1 to 1 (Lawshe, 1975). Higher CVR scores signify a greater consensus among panel members regarding the item's necessity within the instrument (Ayre & Scally, 2014). A positive CVR indicates that at least half of the panelists concur on the item's importance for the construct.

Ethical Considerations

Ethical considerations were carefully addressed throughout the study. Before the research commenced, approval, permits, and consents were obtained from the school president. Following this approval, a pilot test was conducted with a selected group of students to assess the reliability and validity of the research instrument. In the developmental phase of the instrument, a comprehensive Focus Group Discussion (FGD) took place via Google Meet and face-to-face, involving the three accounting faculty. Additionally, the instrument underwent validation by four content validators to ensure its effectiveness and appropriateness."

4. RESULTS AND DISCUSSION

a. Development Phase

Based on the literature review and FGD, Table 1 showed a tool for the evaluation of the Advanced Accounting was developed. Each item was presented in the form of an affirmation, followed by an assessment scale with 3 categories: totally disagree, corresponding to 0 points; partially agree, corresponding to 1 point; totally agree, corresponding to 2 points. This scale was adapted from the scale proposed in The Bernier Instructional Design Scale (BIDS). The tool consists of 9 criteria and 53 statement-questions. The nine criteria are: 1) Measurability of Objectives (6 items); 2) Content (7 items); 3) Clarity and Readability (5 items); 4) Illustration of LAP materials (7 items); 5) Progression and sequencing of LAP material (7 items); 6) Legibility and Printing Characteristics (5 items); 7) Engagement and Accessibility (8 items); 8) Integration of Technology (4 items); and 9) Real-world Application (4 items).

Table 1. Development of the Instrument

Criteria for evaluation of Learning Activity Package (LAP) Materials		Totally Disagree	Partially Agree	Totally Agree
1. Measurability of Objectives	a. Learning objectives align closely with the desired learning outcomes for the course or program.			
	b. The LAP materials consistently reinforce and contribute to the achievement of overarching learning goals.			
	c. Learning objectives are clearly defined and measurable, allowing for straightforward assessment of student mastery.			
	d. The criteria for success in meeting each objective are explicit and quantifiable.			
	e. Learning objectives are structured in a way that demonstrates a logical progression of complexity.			
	f. Objectives build upon each other, guiding students from foundational concepts to more advanced skills or knowledge.			
2. Content	a. Content and information are accurate.			
	b. Content and information are up-to-date.			
	c. The LAP is free from factual errors.			
	d. The LAP is free from computational errors.			
	e. The LAP is sequenced correctly.			
	f. Identifies prerequisite knowledge.			

	g. Has activities, practices, or quizzes that reinforce the content.			
3. Clarity and Readability	a. Language used is composed of simple words.			
	b. The language used in the materials is clear and understandable for the target audience.			
	c. Technical terms explained clearly.			
	d. Planning and sequence of information is consistent, making it easier for the student to predict its flow.			
	e. The LAP is reader-friendly.			
4. Illustration of LAP materials	a. Illustrations are simple, appropriate and present an easily understandable outline.			
	b. Lists, tables and graphs are self-explanatory.			
	c. Illustrations used are straightforward.			
	d. They are related to the text (express the desired purpose)			
	e. They are integrated with the text.			
	f. Illustrations are familiar to the students.			
	g. The pages of the LAP are appealing.			
5. Progression and Sequencing of LAP materials	a. Logical and clear progression of contents from basic to advanced concepts.			
	b. Activities and assessments are appropriately sequenced.			
	c. Instructions and discussions in the LAP are clear and understandable.			
	d. Clearly explained the discussions and examples given.			
	e. Use of words or expressions with double meanings does not occur in the text.			
	f. It includes clear assessment criteria and methods for evaluating student performance.			
	g. Provides constructive feedback on activities and assessments to facilitate learning and improvement.			
6. Legibility and Printing Characteristics	a. Size and style of the letters are adequate.			
	b. Spacing and length of the lines are adequate.			
	c. Content and text are easy to read (appropriate size, color, and style)			
	d. It is written and engages the learner.			
	e. Paper used makes it easier to read.			
7. Engagement and Accessibility	a. It has clear and concise directions on how to complete the LAP.			
	b. It is detailed enough to follow the instructions easily.			
	c. Provides a complete demonstration or examples of the concepts/lessons.			
	d. Provide opportunities to practice new concepts/lessons, skills.			

	e. Can be shared across its own and other academic discipline			
	f. It is very efficient (one can learn a lot in a short period).			
	g. The LAP materials can be easily adapted for different learning styles.			
	h. Accommodates diverse learning needs, including visual, auditory, and kinesthetic learners.			
8. Integration of Technology	a. Utilizes technology effectively to enhance the learning experience.			
	b. The LAP materials incorporate multimedia elements, interactive components, or online resources where appropriate.			
	c. The technology used is user-friendly and accessible for all students.			
	d. Clear instructions are provided on how to navigate and utilize the technological elements incorporated into the LAP materials.			
9. Real-world Application	a. Demonstrates practical applications of the concepts covered in real-world scenarios.			
	b. Includes case studies or examples that connect theoretical knowledge to practical situations.			
	c. The LAP materials demonstrate an understanding of current industry practices and trends.			
	d. Practical examples and case studies reflect real-world accounting scenarios, ensuring relevance to the professional accounting field.			

b. Validation Phase

In the validation phase, the focus was on assessing the measure's reliability and gauging its repeatability. The instrument exhibited strong reliability with a Cronbach's alpha of 0.935, as detailed in Table 2, and was analyzed using SPSS version 22. According to Fisher (2007), this high alpha value suggests the instrument is excellent, indicating its capacity for replication in another sample of students evaluating different learning materials.

Table 2. Cronbach alpha

Reliability Statistics	
Cronbach's Alpha	N of Items
.935	53

Content Validity

Content validity involves scrutinizing the adequacy of item sampling to ensure that a specific set of items accurately reflects the domain content. At first, 53 items were created, which went through the process enlisted the help of four experts to evaluate each item's content validity.

Following the Lawshe Model (Lawshe, 1975; Wilson et al., 2012), everything was exposed to a two-point scale assessment; essential or not necessary. The reactions from all specialists were amassed, and the quantity of specialists specifying "essential" for every item was settled. The critical value of the content validity ratio(CVR) was determined utilizing the formula:

$$CVR = \frac{n_e - \left(\frac{N}{2}\right)}{\frac{N}{2}}$$

Where; ne addresses the number of specialists specifying "essential" and N is the absolute number of specialists. In light of the agreement arrived at by the specialists, 43 items were considered adequate to reflect the idea while assessing the Learning Activity Package in Advanced Accounting.

Table 3. Profiles of the Subject Experts Selected for Judging Content Validity

Designation of the Evaluators/Experts	Organization/Affiliation	No. of Years of Experience
1.Asst. Professor IV	Xavier University	19
2. Asst. Professor II	Capitol University	12
3.Instructor 1	Opol Community College	5
4. Instructor 1	Opol Community College	4

Table 4. CVR for items of each dimension where Ne represents the number of Experts who rate an item as "Essential"

Item No.	Ne	CVR	Item No.	Ne	CVR	Item No.	Ne	CVR
1	4	1.00	19	4	1.00	37	1	-0.50
2	4	1.00	20	4	1.00	38	4	1.00
3	3	0.50	21	1	-0.50	39	2	0.00
4	4	1.00	22	4	1.00	40	4	1.00
5	4	1.00	23	2	0.00	41	4	1.00
6	1	-0.50	24	1	-0.50	42	4	1.00
7	4	1.00	25	4	1.00	43	4	1.00
8	2	0.00	26	4	1.00	44	4	1.00
9	4	1.00	27	4	1.00	45	4	1.00
10	4	1.00	28	4	1.00	46	4	1.00
11	4	1.00	29	4	1.00	47	4	1.00
12	1	-0.50	30	1	-0.50	48	4	1.00
13	4	1.00	31	4	1.00	49	4	1.00
14	1	-0.50	32	4	1.00	50	4	1.00
15	4	1.00	33	1	-0.50	51	4	1.00
16	4	1.00	34	4	1.00	52	4	1.00
17	1	-0.50	35	4	1.00	53	4	1.00
18	1	-0.50	36	4	1.00			

Content Validity Ratio (CVR) Analysis

The Content Validity Ratio (CVR) was employed to determine the percentage of panelists deeming an item "essential." Ranging from 0 to 1, the CVR for each item on the scale indicated that half or more of the panelists rated these items as essential. The CVR scale varies between 1 and -1, with a higher score signifying more remarkable agreement among panel members. Individual CVR values were generated for each item.

Items marked as "not essential" had a CVR <0.99, determined based on the total number of experts (N=4) and the Lawshe table's numerical values. Consequently, nonessential items, totaling ten out of 53, were identified and could be considered for elimination. Table 4 overviews panelist ratings, essential and unnecessary items, and the corresponding CVR calculations. Notably, 39 items demonstrated a CVR of 1.00. One scored 0.50, three scored 0.00, and ten scored -0.50. The average CVR value across all items was computed at 0.65.

5. CONCLUSION AND RECOMMENDATION

Utilizing the Lawshe Model, the content validity assessment provided a framework for scrutinizing the adequacy of the item sampling in the Learning Activity Package for Advanced Accounting. Experts' commendable and excellent mean ratings reinforce the LAP's role as an innovative tool designed to infuse excitement and satisfaction into faculty and students' teaching and learning experiences. Supported by a Cronbach alpha reliability of 0.935, students' positive evaluations further

underscore the LAP's efficacy in fostering independent learning. However, identifying ten nonessential items with a CVR <0.99 necessitates careful consideration regarding their inclusion in the final Learning Activity Package. The findings of this study support that a learning activity package (LAP) helps supplement student's independent learning and deserves more significant consideration in the academe to improve the teaching-learning process. Research findings revealed that the learning activity package is valid for college students, particularly at-home self-learning.

It is recommended to consider revising or eliminating items to ensure the LAP aligns optimally with the intended domain content. Learning Activity Package is an effective supplement for independent student learning and a dynamic tool with considerable potential for broader application and continuous improvement in educational contexts. It is also recommended to seek additional expert input to corroborate the findings and enhance the reliability of the content validity assessment. Regularly evaluate and update the Learning Activity Package based on feedback from educators, students, and advancements in Advanced Accounting. LAP crafters can explore its utility in considering a diverse range of printed learning materials, broadening its scope and impact. A well-crafted questionnaire can further gauge students' performance improvement.

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