

Can the Indonesian Version of Kolb Learning Style Identify Learning Style Preferences of High School Students?

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Abstract—The use of teaching approach associated with student learning style preferences was highly recommended. Based on this perspective, this study was carried out with two aims: to provide the Indonesian version of Kolb learning style inventory version 3.1 (K-LSI 3.1) and to identify high school students learning style preferences using the Indonesian version of K-LSI 3.1. To achieve the aims, the study was conducted through the translation of Kolb learning style inventory to *Indonesia language (Bahasa Indonesia)*, and the administration of the Indonesian version of K-LSI 3.1 to 35 public high school students in Bengkulu Province. The results indicated that (1) the Indonesian version of K-LSI 3.1 is able to identify school students learning style preferences, (2) the most dominant learning style preference is assimilator followed by convergers, divergers and accommodators.

Keywords—learning style; Kolb learning style inventory

I. INTRODUCTION

By synthesizing the previous-educational research findings from a number of studies, students' individual learning preference can be divided into three considerably different learning styles; they intend to concentrate on unlike type of information, to function on perceived information in dissimilar ways, and to attain understanding at unlike speeds [1]. These findings indicate that individuals will learn the dissimilar ways and possess their own preferences and styles to catch and process information.

Learning style is basically the preference or predisposition of an individual to perceive and process information in a particular manner or combination of way [2]. One of the most extensively used models of learning style is Kolb's model of experiential learning [3]. The model comprises four modes of learning: concrete experience (CE); reflective observation (RO); abstract conceptualization (AC); active experimentation (AE). Based on several learning approach, the four learning styles were created. Those of the fourth are diverging, assimilating, converging, and accommodating.

Students whose learning styles are corresponding to teaching approaches tend to retain information longer, utilize it effectively, and have added positive attitude toward the subject

delivering by teachers than do students' experiencing learning styles mismatches [1]. To ensure teaching approaches are appropriate and effective, it is crucial to comprehend the ways in which they best learn [4]. Therefore, the students' learning style is recently receiving increasing attention from educators and researchers.

To make teachers aware their students learning styles, it is important to provide teachers a valid and reliable instrument to assess the students learning style preferences. Kolb' Learning Style Inventory version 3.1 (K-LSI 3.1) was employed in this study [5]. However, the KLSI 3.1 is currently and unavailable and unobtainable in *Bahasa Indonesia* despite being already available in the Turkish version and the Persian version [6,7].

This study reports (a) the translation of original K-LSI 3.1 to the Indonesian version and (b) to examine the tenth grade students' learning style using the Indonesian version.

II. METHODS

The latest version K-LSI 3.1 contains 12 statements which applies a forced-choice ranking method to identify an individual's preferred modes of learning (AC, CE, AE, and RO) [5]. The respondents are invited to give a score ranging from 4 (learn best) to 1 (learn least) to any of the four choices according to their learning style preferences. The K-LSI 3.1 provides six scores: CE, RO, AC, AE, and two combination scores: (AC-CE) and (AE-RO) [3–5]. The K-LSI scores were computed by adding up the numerical scores.

The original version of K-LSI 3.1 was translated into *Bahasa Indonesia* by authors who fluently speak English and *Bahasa Indonesia*. The translators are senior lectures and physics teacher in high school.

A contextual, rather than textual, translation of the original version of the K-LSI version 3.1 was performed. Since the original instrument was designed for Western people, with 12 questions in English, the careful translation and back translation was done [8]. Furthermore, the guiding principle in translation process was the equivalence with the original meaning of 12 items. A flow chart of translation the original

version of K-LSI 3.1 to *Bahasa Indonesia* was simplified in “Fig. 1”.

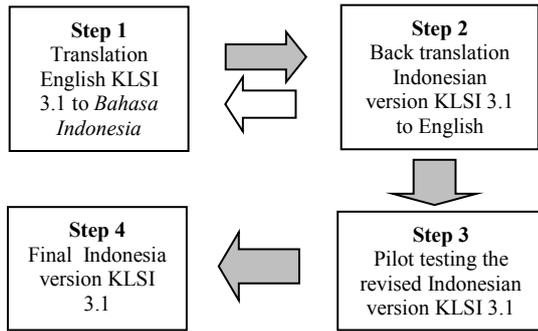


Fig. 1. A flow chart of translation in original version (KLSI version 3.1).

The instrument used in this study to achieve the research aims was the Indonesian version of K-LSI version 3.1 consisting of two sections. The demographic respondent (sex, age) is provided on the first section. The second section was the Indonesian version designing to help individuals identify the way they learn from experience [5].

The descriptive study was adopted in this study since the research aims was to describe the process of translation the English version of KLSI 3.1 to *Bahasa Indonesia* and to identify students’ learning styles without affecting their preferences.

Data was collected directly from 35 tenth-grade public high school students after taking science class in even semester 2017/2018. Following the data collection, the data analysis was based on the descriptive statistics such as the determination of frequency and computing of percentages [9].

III. RESULTS AND DISCUSSION

Based on the flow chart that was depicted in “Fig. 1”, the process of translation English version of K-LSI 3.1 to *Bahasa Indonesia* that was conducted during proses of translation, it was described as follows.

A. Step 1. Translation to Bahasa Indonesia

The original English version of K-LSI 3.1 was translated into Bahasa Indonesia by the first author (IK). At this stage, the efforts were focus on achieving linguistic and contextual equivalence with the original English version. Eventually, there were few dissimilarity and no adjustments were needed regarding the cultural aspects of language because the statements involved common aspects of students’ learning preferences.

B. Step 2. Back-Translation to English

After translation into *Bahasa Indonesia* was done, the second and third author (SWN, DHP) as translators conducted a back translation into English to investigate whether or not the translation had captured the original meaning. When the back translation differed from the English version of K-LSI 3.1, discussion and adjustment were carried out by the two translators to retain with Indonesia culture. Using the translated

version, they decided on the appropriate translation for each item in line with the original language of K-LSI 3.1.

C. Step 3. Pilot Testing

The translated K-LSI 3.1 administered by the second author, a physics teacher in public high school, to six students. The purpose of pilot testing was to achieve the equivalence between words (semantic), equivalent expressions (idiomatics) and words and situation suitable to Indonesian cultural context (experimental). The result of pilot testing was evaluated and discussed further by the three authors. For example, some difficulties were indicated in the translated K-LSI 3.1, because of the certain statements misunderstood by students. After doing an assessment and adaptation with students’ understanding to the meaning of every statement, the translated process of the original version of K-LSI 3.1 was finally terminated.

TABLE I. HIGH SCHOOLS STUDENTS’ PREFERRED LEARNING STYLE

(N = 35)			
Kolb’s learning style	Mode learning ability	Frequency	%
Accommodator	CE-AE	5	14,29
Assimilator	AC-RO	12	34,28
Converger	AC-AE	11	31,43
Diverger	CE-RO	7	20,00

Table I displays the frequency and percentage of students’ learning style preferences based on Kolb’s learning models. The findings represented a total of 35 senior high school student have the preferred learning styles in assimilator (34,28%) and convergers (31,43%), followed divergers (20%) and accommodators (14%).

Most of the learning style has been introduced by scholars for example Grasha-Reichermann, Felder and Silvermann, Byers-Bergs, Kolb and many other to enable students to be classified as a specific group. According to several considerations, Kolb’s learning style model was adopted in this current study to classify students into the particular group. Results of use of the translated K-LSI 3.1, indicated that the dominant learning style preferences was assimilators and convergers. However, majority of students (65,71%) preferred abstract conceptualization rather than concrete experience.

Many studies pointed out that gender differences coexisted in the preferred learning style [10,11]. For instant, though male and female students were found to prefer active learning method most, differentiation still exists between males and females’ preference for passive and group learning method [10]. However, gender issues were not intended to be studied.

Moreover, by employing the classification of students based on their learning style, teachers can facilitate students with the formats of learning material and match teaching methods with dominant students’ learning style [4,12].

As educator, it is important to have knowledge of students’ learning preferences. By using the Indonesian version of K-LSI 3.1, teachers or lecturers can match their teaching method with students’ learning style. Since one of the main concerns of

students and educators in cross countries is the dissatisfaction with the current teaching practices and students' achievement.

D. Step4. The Final Indonesian Version of K-LSI 3.1

Following this third stage, the last version was revised into a final version which was implemented in the next phase of study.

The Indonesian version of KLSI 3.1 administrated to 35 students. All students participated in this study and responded to 12 questions. The learning styles of senior high school students were ascertained through descriptive analysis and the results are depicted in Table I. The majority of student participated in this study are female (62%), while male only 38%.

IV. CONCLUSION

According to the evidence of this study, the Indonesian version of K-LSI 3.1 can be used as a measure of students' learning preference for a number of reasons. First, students involved in the current study capture undoubtedly the meaning of 12 statements in the Indonesian version of K-LSI 3.1. Second, the instrument was responded completely in short time by students. Finally, this instrument can be administered and scored easily by teachers.

Once 35 students' learning preferences were identified throughout the Indonesian version of KLSI 3.1, it can be stated that the students' learning styles were various. Interestingly, students have been studying in the same class, they vary in how they perceive and acquire information, conceptualize, form, process and memorize ideas. Therefore, assessing students' learning style is a key to the learning and teaching process.

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