



The Reliability of "Learning Environment Preferences" Inventory in the Malaysian Context

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ABSTRACT

The study aims to determine the reliability of the Learning Environment Preferences (LEP) inventory among counselor trainees. A total of 100 subjects consisting of final-year students from the Guidance and Counseling Program in local universities, participated in this study. Results from the study found a high validity value of .948 for all the inventory items. The results also showed high reliability for the entire sub-scale items, achieving Cronbach's Alpha values of .755 to .889. Based on these results, the LEP is considered appropriate to be used in order to test counselor trainees' cognitive complexity.

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Introduction

The notion that cognitive complexity is essential to the effectiveness of counselors is indisputable. Borders (1991), stressed that counselors must be able to integrate and synthesize large amounts of data and conflicting information, including being able to distinguish between relevant and irrelevant factors. In addition, counselors also need to become more independent, objective, and flexible in their thinking. Borders further argued that if counselors are able to achieve all these things, they will be better able to see clients from a variety of perspectives and be more empathetic in understanding diverse issues.

Perry (1970) and Harvey, Hunt, and Schröder (1961) defines cognitive complexity as a convenience for abstract thinking, tolerance for ambiguity, and the ability to make internal decisions compared to external decisions. Granello (2010) described cognitive complexity as the ability to absorb, integrate and use multiple perspectives in counseling interventions.

Although there are various definitions given on cognitive complexity, the majority does agree that an increase in its development will largely benefit counselors. A counselor needs to think in a complex manner to serve his client and help create an effective communication so that the client can function as a normal person. As stated by Granello (2010), counselors with high cognitive complexity will have a more stable internal orientation.

Lovell (1999) conducted a study involving 340 counseling graduates. The result showed a significant positive correlation ($r = 0.31$, $p < 0.01$) between empathy and cognitive complexity. High cognitive complexity increases the counselor's ability to understand their clients with more empathy. According to him, empathy is the ability to see another person's perspective which has long been accepted as one of the most important features of a counselor.

Various studies have found that counselor trainees having a higher cognitive complexity are more aware of the therapeutic relationship process (Borders, Fong & Neimeyer, 1986), they

see their clients more positively and objectively (Borders, 1989), they respond more easily to complex clients (Kimberlin & Friesen, 1980), and they form a clearer clinical hypotheses (Holloway & Wolleat, 1994). Spengler and Strohmmer (1994) found that counseling psychologists who hold a doctorate degree but have lower cognitive complexity are more likely to develop clinical judgment that is weak compared with their counterparts having higher cognitive complexity. Researchers also presented an analogy to the clients who showed symptoms of major depression, but with different IQ level (108 vs 58). The comparison found that those with lower cognitive complexity, lack of diagnosing depression among clients with mental retardation. As is often unknown, mental retardation is "overshadowed" by depression. This explains that if the cognitive complexity is low, it will result in a counselor missing a client's diagnosis.

Duys and Hedstrom (2000) studied the cognitive complexity of 72 graduate students during the semester for 14 weeks. Of these 72 students, 36 were enrolled in skills and experience classes which involves role playing, while the other 36 students enrolled in courses involving didactic teaching, for example courses on ethics and research methods. The researchers found the cognitive complexity increases significantly for students pursuing the experience courses compared to students participating in the didactic teaching classes. Researchers interpret this finding as proof that shows improvement in cognitive can happen in a short period of time through skills training experience.

Little, Packman, Smaby, and Maddux (2005) compared the development of cognitive complexity among students in introductory counseling classes. Comparison was made between students who were given skills training focused on role-playing as well as feedback from classmates and the instructor, with students who did not receive this training. At the end of the semester, students who received the training were observed as having a higher cognitive complexity and demonstrate better counseling skills.

Past research showed a strong and positive relationship between cognitive complexity development and the effectiveness of counselors (Larson & Daniels, 1998). It involves self-generating process, that is the cognitive appraisal process after taking into account the feedbacks about yourself and situations that will be encountered.

Learning Environment Preferences (LEP)

Learning Environment Preferences (LEP) has been developed by Moore (1989). LEP was developed to measure counselors' cognition. Moore (1989) designed the inventory based on Perry's model (1970). This model is widely used in research and studies on university students in the field of counseling (Granello, 2002; McAuliffe & Lovell, 2006).

The LEP consists of 65 items which are divided into five different sub-scales:

1. View of knowledge/learning
2. Role of the instructor
3. Role of the student/peers
4. Classroom atmosphere/activities
5. Role of evaluation/grading

Each sub-scales consists of 13 items in the form of statements. All of the items used a four-point Likert scale of 1 (not at all significant), 2 (somewhat significant), 3 (moderately significant), and 4 (very significant).

Perry's Model

William G. Perry, a counselor at Harvard in the 1950s and 1960s, who reviewed about intellectual developments among college students, which has laid the foundation for the theory of cognitive development. His study is still relevant for today's college teachers despite being established over 30 years ago. Perry began the study with the aim to know how college students think or make judgments on their experience. The Perry Model is the result of qualitative analyses based on epistemology as a way to describe the experience of students and their evolving changes.

Perry (1970) outlines how individuals move from thinking right or wrong to the ability to think and examine their own thinking. He also developed a model that explains and shows how students process information, theories, experiences, and opinions they learned in class. This is a theory of intellectual and ethical development which proposed nine hierarchical structure of thoughts that can be grouped into three different ways of thinking; dualism, relativism, and commitment.

Purpose of Study

The main purpose of this study is to identify the reliability of the LEP instrument.

Method

This study has gone through three processes, namely the translation process, validity measurement, and reliability testing.

The first process: The translation process involved two experts in their respective languages, an expert in English and an expert in the Malay language. The first translator must translate the original version of LEP inventory from English to Malay. The second translator will then translate the Malay version of LEP back into English, without reference to any other sources.

The second process: The process of measuring the validity of the LEP was implemented after the first process was completed. The translated LEP inventories were tested for its validity through a review by experts in relevant fields so that the meaning and purpose are in accordance with the subject matter being studied. Two experts who specialize in this field were appointed to check the accuracy of the questionnaire.

The third process: To test the reliability of the instrument, the measurement used to assess the consistency and reliability of

the items are Cronbach's Alpha. This study involved 100 counselor trainees undergoing training internships.

Results

Information on Demography: There are four questions in the questionnaire related to demographic data of respondents as shown in Table 1.

Table 1: Demographic information of the respondents

Profile	Number	Percentage
Gender: Female	78	78%
Male	22	22%
Race: Malay	88	88%
Chinese	9	9%
Indian	3	3%
Internship Setting:		
School	44	44%
Institute of Higher Education	44	44%
Government Organisation	8	8%
Non-government Organisation	4	4%
Medium used to contact supervisor:		
Telephone	54	54%
Email	36	36%
Face to face	8	8%
Others	2	2%

Analysis of the reliability of each part indicates that all of the five domains on LEP scale has a high reliability. First domain of the scale examines view of knowledge/learning and includes 13 items.

Role of the instructor

Role of the student/peers

Classroom atmosphere/activities

Role of evaluation/grading Reliability index analysis for instrument: The reliability index for instruments is valued based on the coefficient alpha in Table 2 to Table 7.

Table 2: Reliability Analysis LEP-View Of Knowledge

	My ideal learning environment would...	Cronbach's Alpha if Item Deleted
1.	...emphasize basic facts ...	.719
2.	...focus more on having the right answer...	.737
3.	...ensure that I get all the course	.730
4.	...	.718
5.	...provide me with an opportunity	.714
6.	...	.750
7.	...allow me a chance to think ...	.731
8.	...emphasize learning simply ...	.716
9.	...let me decide for myself ...	.704
10.	...stress the practical ...	.707
11.	...focus on the socio-psycho ...	.713
12.	...serve primarily as a catalyst for research...	.722
13.	...stress learning and thinking ...	.714
	...provide me with appropriate learning ...	
	...emphasize a good positive relationship...	

(If you need a complete questionnaire, you can get it from: Moore, W. S. (1989). The Learning Environment Preferences: Exploring the construct validity of an objective measure of the Perry Scheme of intellectual development. *Journal of College Student Development*, 30, 504-514.)

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Table 3: Reliability Analysis LEP- Role of instructor Domain

	In my ideal learning environment...	Cronbach's Alpha if Item Deleted
14.	...teach me all the facts ...	.782
15.	...use up-to-date textbooks ...	.764
16.	...give clear directions ...	.774
17.	...have only a minimal role ...	.786
18.	...be not just an instructor ...	.797
19.	...recognize that learning ...	.773
20.	...provide a model ...	.776
21.	...utilize his/her expertise ...	.770
22.	...demonstrate a way...	.772
23.	...offer extensive comments ...	.769
24.	...challenge students ...	.780
25.	...put a lot of effort ...	.771
26.	...present arguments ...	.761

Table 4: Reliability Analysis LEP- Role of student/peers Domain

	In my ideal learning environment...	Cronbach's Alpha if Item Deleted
27.	...study and memorize ...	.819
28.	...take good notes ...	.816
29.	...enjoy having my friends ...	.846
30.	...hope to develop my ability	.826
31.	...	.826
32.	...prefer to do independent research ...	.826
33.	...expect to be challenged ...	.826
34.	...prefer that my classmate ...	.829
35.	...anticipated that my classmates ...	.822
36.	...want opportunities to think	.828
37.	...	.818
38.	...take some leadership ...	.818
39.	...participate actively ...	.821
	...expect to take learning seriously ...	
	...want to learn methods ...	

(If you need a complete questionnaire, you can get it from: Moore, W. S. (1989). The Learning Environment Preferences: Exploring the construct validity of an objective measure of the Perry Scheme of intellectual development. Journal of College Student Development, 30, 504-514.)

Table 5: Reliability Analysis LEP- Classroom atmosphere/activities Domain

	In my ideal learning environment...	Cronbach's Alpha if Item Deleted
40.	...be organized and well structured ...	.876
41.	...consist of lectures...	.876
42.	...include specific ...	.873
43.	...focus on step-by-step ...	.880
44.	...provide opportunities ...	.878
45.	...be only loosely structured ...	.875
46.	...include research papers ...	.878
47.	...have enough variety ...	.875
48.	...be practiced and internalized...	.879
49.	...	.876
50.	...consist of a seminar format...	.877
51.	...emphasize discussion of personal ...	.887
52.	...be an intellectual dialogue...	.880
	...include lots of projects...	

(If you need a complete questionnaire, you can get it from: Moore, W. S. (1989). The Learning Environment Preferences: Exploring the construct validity of an objective measure of the

Perry Scheme of intellectual development. Journal of College Student Development, 30, 504-514.)

Table 6: Reliability Analysis LEP- Evaluation procedures Domain

	Evaluation procedures...	Cronbach's Alpha if Item Deleted
53.	...include straightforward...	.803
54.	...be up to the teacher...	.762
55.	...consist of objective- style test...	.772
56.	...	.766
57.	...be based on how much students...	.766
58.	...	.789
59.	...provide an opportunity...	.789
60.	...not include grades...	.775
61.	...include grading by a prearranged...	.760
62.	...	.765
63.	...represent a synthesis of internal...	.758
64.	...	.764
65.	...consist of thoughtful criticism... ...emphasize essay exam, papers... ...allow students to demonstrate... ...include judgements of the quality... ...emphasize independent thinking...	.758

(If you need a complete questionnaire, you can get it from: Moore, W. S. (1989). The Learning Environment Preferences: Exploring the construct validity of an objective measure of the Perry Scheme of intellectual development. Journal of College Student Development, 30, 504-514.)

Table 7: Reliability Analysis According to Sub-Scale and Overall

Sub-Scale	Cronbach's Alpha	Cronbach's Alpha based on standardized items
View of knowledge/learning	.737	.755
Role of the instructor	.789	.795
Role of the student/peers	.836	.848
Classroom atmosphere/activities	.886	.889
Role of evaluation/grading	.785	.806
Overall	.943	.948

According to DeVellis (1991), the acceptable minimum value of Cronbach's Alpha is 0.6, the values of 0.7 to 0.8 are considered good, and .8 to .9 is very good. Based on these details, LEP can be adopted. Overall items and sub-scales displayed a really good Cronbach's Alpha values. The results of this study support the findings of Granello (2002) that the LEP has good reliability for the overall Cronbach's Alpha of .89, while the Cronbach's Alpha reliability level by sub-scales are between .63 to .84.

Conclusion

Reliability testing is an important factor for determining the suitability of an inventory to be used. The results showed that the LEP has high validity of .87 for the overall item, and by sub scales the value is between .85 to .88. The findings also show the LEP has a high reliability of .948 for the overall item and reliability scale between .755 to .889 by sub scales. This study clearly shows the LEP can be used to measure cognitive complexity of counselors in the Malaysian context.

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