

DESIGNING A REFLECTION LEARNING SCALE FOR NURSE ANESTHETIST STUDENTS

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Received 24/6/2019, Peer reviewed 8/8/2019, Accepted for publication 20/9/2019.

ABSTRACT

Reflection is the best competence for students to recognize themselves in learning environment, which helps student apply the tacit knowledge flexibly in a different circumstances. Reflection, therefore, helps learner get effective working by catching tacit knowledge, increase delectation in the cognition and apply their knowledge in different situation in practice. However, the competence of reflection is not easy for evaluating and improving during the learning process, especial in practice. This paper reports the construction and validation of Reflection in Learning Scale (RLS) to estimate the reflection's ability in Vietnamese Students. The first RLS was mapped a fourteen items scale from literature review and pilot testing of 76 students to find out the construction and validation of RLS. In a series of study three separate factors analyses found the RLS comprised three separate factors, labelled Developing Tacit Knowledge (DTK) with 6 items, Applying for New Situation (ANS) with 3 items and Getting Critical Cognition (GCC) with 3 items. The validations of 3 factors in RLS were 0.83 (DTK), 0.67 (ANS) and 0.76 (GCC). The Likert Scale for RLS was determined with 2 indicators.

Keywords: *Reflection; Reflection Learning Scale; Applying for New Situation; Developing Tacit Knowledge; Getting Critical Cognition.*

1. INTRODUCTION

Main point of education 4.0 is that students must refresh and update knowledge and skills. Preparing professionals possess the capabilities which can help students solve the problems in future career. Reflection noted in the general education literature and is increasingly described as essential attributes of competent professionals who are prepared to address these challenges. Despite reflection's currency as a topic of educational importance, and the presence of several helpful models, there is surprisingly little to guide educators in their work to understand and develop reflective ability in their learners, especial in Vietnam. This paper will design for reviewing the literature of reflection about the definition and build the Reflection Learning Scale for the Vietnamese students.

2. DEFINITION OF REFLECTION LEARNIG

Many definitions of reflection can be found. To guide our review we used three definitions, to reflect both the nature of the reflective activity and its translation into professional practice.

Dewey defined reflection as “active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusion to which it tends” [1]. It means that reflection shares similarities with our understanding of critical thinking. Moon described reflection as “a form of mental processing with a purpose and/or anticipated outcome that is applied to relatively complex or unstructured ideas for which there is not an obvious solution” [2]. Boud et al. (1985) defined reflection as “a generic term for

those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to a new understanding and appreciation” [3].

All three definitions emphasize purposeful *critical analysis of knowledge and experience*, in order to achieve deeper meaning and understanding. Boud showed definition more explicitly focuses on one’s personal experience as the object of reflection and is more explicit about the role of *emotion in reflection*.

Reflection Learning, therefore, is the process of acquiring new or modify knowledge, skill and attitude by using reflection competence.

3. VIETNAMESE REFLECTION LEARNING SCALE

Reflection Learning Scale (RLS) have built by many the authors in education field since the early of XX century. Three popular RLS, have been used to evaluation of reflection in education, are Reflection Questionnaire in 2000 [4], Reflection in Learning Scale in 2001 [5], and Groningen Reflection Ability Scale in 2007 [6]. Each scale has some disadvantages and advantages in some factors of reflection. Reflection Learning Questionnaire was built up by Kember in 2000. Four dimensions of habits, understanding, reflection and critical reflection with some criteria in each one were divided and Five-Point Likert Scale was used in each criterion. Kember’s Questionnaire only focused on the dimensions from the lower ability to higher ability, which is different from this paper purpose. Aukes built up the Groningen Reflection Ability Scale in 2007 and 23 criteria with Five-Point Likert Scale was not divided in any dimensions, which is also not suitable to paper purpose. The Reflection in Learning Scale in 2001 was built up by Sobral, which is quite suitable with Vietnamese culture and circumstance in nurse education. Fourteen criteria focused on three dimensions which were not ranged, is suitable for this study. Fourteen criteria of RLS in 2001 is used to

develop the Vietnamese Reflection Learning Scale (VRLS) by reviewing literature and understanding Vietnamese culture, environment and language.

3.1. Objective of study

This paper’s purpose develops the Reflection Learning Scale which is used for evaluating the Vietnamese Students’ Reflection Learning.

3.2. Sample size

The sample size must analyze the Exploratory Factor Analysis (EFA) and Variance Regression. With EFA, the minimize sample size (N) is 5 times of summary of observing variances (m) [7], $N = 5 * m$, $N = 5 * 14 = 70$. With Variance Regression, the minimize sample size (n) is fifty and 8 times of independent variance[7], $n = 50 + 8 * m$, $n = 50 + 8 * 3 = 74$. As the result, the minimum sample size is 74.

3.3. Participants

The participant is seventy-six students of 2 classes, CNLT and CNCQ in Nursing Anesthetist department, Nursing and Medical Technology school, University of Medicine and Pharmacy in Ho Chi Minh City. They are studying at this department in semester 2017-2018 and freely joined in this study.

3.4. Methodology

Based on the literature review, the 14 criteria for Reflection Learning Scale (RLS) is established by Vietnamese language. These criteria are recognized by the Nursing Student with Five-Point Likert Scale. Each Likert Scale has two variables: frequency and encouraged levels of reflection (*table 1*).

Table 1. Likert Scale for RLS

	Frequency of Reflection	Encouraged level of Reflection
1	Never	Very Limited
2	Seldom	Quite Limited
3	Sometimes	No Limited
4	Usually	Quite Encouraged
5	Always	Very Encouraged

Fourteen Criteria RLS with Five-Point Likert Scale was surveyed on the 76 Nurse Anesthetist Students of the school year 2017 - 2018 in Nurse Anesthetist department, Nurse and Medical Technology school, University of Medicine and Pharmacy in HoChiMinh City. Data was collected, input by using Epidata 3.1 and used SPSS 16.0 to analyze Cronbach's Alpha and test the value of each criterion.

3.5. Results

The result showed that 100% of delivery is collected.

3.5.1. Construction of VRLS

The *Kaiser-Meyer-Olkin Measure of Sampling Adequacy* is a statistic that indicates the proportion of variance in variables that might be caused by underlying factors. High values (close to 1) generally indicate that a factor analysis may be useful with data. This result indicated the KMO values is $0.673 > 0.5$, which RLS get valuable and useful. *Bartlett's test of sphericity* tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that variables are unrelated and therefore unsuitable for structure detection. This paper's result is smaller than 0.05, which means the hypothesis was rejected. As this result, these variables in the matrix RLS got relation and suitable for the structure.

Table 2. Component of RLS

Items	Components			Total Correlation
	1	2	3	
	$\alpha = 0.823$	$\alpha = 0.662$	$\alpha = 0.762$	
Developing Tacit Knowledge (DTK)				
1	I rise questions for my friends what are learning and which method are using for learning.	0.841		0.681
2	I think that I am studying and which purpose is it used for.	0.795		0.606
3	I sought out interrelations between topics to construct more comprehensive notions, which help me to understand these notions in their themes.	0.71		0.588
4	I compares between what I am learning and which experience I have got.	0.652		0.692
5	The summary which I withdrew from learning is my next objective for my learning.	0.575		0.497
6	I implement self-critical evaluation.	0.566		0.498
Applying for New Situation (ANS)				
7	I reviews all related contents which I learnt before implement somethings in new situation.		0.834	0.563
8	I sought the advantage or disadvantage by learning in different contexts and circumstances.		0.691	0.467
9	I removed the negative feelings to determine the objectives and learning plans.		0.577	0.406
Getting Critical Cognition (GCC)				
11	I self-evaluate and self-adjusts to be suitable to learning subjects or learning situations.		0.711	0.703
12	I try to maximize my competence to adjust		0.566	0.571

The result of Cronbach's Alpha 14 criteria divided into 5 groups (*Table 2*). Two of 5 groups only got a criterion. Therefore, 3 groups with 12 criteria of 5 groups were chosen in the RLS. Three groups of criteria were suitable for literature review, which are developing tacit knowledge, applying for new situation and getting critical cognition. This result is also suitable to the study of Chiu (2013) in Taiwan on the reflection of physical therapy students, which are 12 criteria in 3 groups using for evaluating reflection [8].

3.5.2. Validation of RLS

The Validation of Reflection Learning Scale (RLS) has 3 factors (*table 2*) which mean developing tacit knowledge with 6 criteria, applying for a new situation with 3 criteria and getting critical cognition with 3 criteria.

The Cronbach's Alpha of Developing Tacit Knowledge (DTK) factor is $0.82 > 0.6$, which means the reliability of this factor is good for using 6 items to evaluate DTK of RLS. The correlation of 6 items from 0.41 to 0.56 (*table 2*), which means all items was chosen to evaluate DTK. The Cronbach's Alpha of Applying of New Situation (ANS) factor is $0.66 > 0.6$, which means the reliability of this factor is good for using 3 items to evaluate ANS of RLS. The correlation of 3 items from 0.48 to 0.70 (*table 2*), which means all items was chosen to evaluate ANS. The Cronbach's Alpha of Getting Critical Cognition (GCC) factor is $0.76 > 0.6$, which means the reliability of this factor is good for using 3 items to evaluate GCC of RLS. The correlation of 3 items from 0.52 to 0.69 (*table 2*), which means all items was chosen to evaluate GCC.

4. DISCUSSION

This paper built the RLS, which consists of 3 factors with 12 items. Each item gets Five-Point Likert Scale (*table 1*), which get 2 indicators to evaluate each item. These indicators are frequency and limitation of reflection's encourage. Two indicators show

the cognition of student and role of teacher while learning and teaching. Based on that, it is very easy for RLS user suppose some recommendation to improve reflection's ability.

On the world, the scale to evaluate the reflection has been the huge ambitions of the educational researcher since very early XXI century. The Sobral (2001), Kember (2000), and Aukes (2007) built 3 popular scale to evaluate the reflection. However, the acceptability of them was limited due to culture, environment and language. Therefore, some version by their own countries where be used such as Chiu (2013) in Taiwan – an Asian country. This paper creates the new version to suitable

environment, culture and it is built by Vietnamese. This showed that the reflection moved to the other continent, accepted by the other culture. The RLS get the same with the Scale from Chiu (2013) with 3 factors to evaluate the reflection's ability.

5. CONCLUSION

This paper reviewed literature to map the matrix with fourteen items to get the raw material to build the RLS. The RLS was created with 3 separated factors: DKT with 6 items, ANS and GCC with 3 items. These items were evaluated with Five-Point Likert Scale which was got two indicators frequency and limitation of encouraging, which is very easy for user to rise the recommendations.

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