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Development and Psychometric Validation of the Learner Awareness Questionnaire

S. Chee Choy[1,*], Pauline Swee Choo Goh[2] & Mun Yee Lee[1]

[1]Centre for Education Psychology and Instructional Strategies, Tunku Abdul Rahman University College, Perak Branch, Malaysia

[2]Sultan Idris University of Education, Malaysia

[*]Corresponding author: Centre for Education Psychology and Instructional Strategies, Tunku Abdul Rahman University College, Perak Branch, Malaysia. Tel: 605-4660-388 E-mail: choysc@mail.tarc.edu.my

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Abstract

The aim of this paper is to discuss the development and psychometric validation of the Learner Awareness Questionnaire (LALQ) using exploratory factor analysis and correlation studies with the Revised Two Factor Study Process Questionnaire (R-SPQ-2F) and Revised Achievement Goal Questionnaire (AGQ-R). This instrument assesses the approaches students take to learn and why they learn. The purpose for developing the LALQ is to provide an easy to administer student approaches to learning questionnaire that is designed specifically for Malaysian students that is comparable in terms of reliability and validity to other more establish instruments like to R-SPQ-2F and the AGQ-R. An initial set of 36 items of the LALQ were derived from the data collected from a phenomenological study and existing literature on student learning. A process of testing and refinement, using 172 randomly selected undergraduate students from various faculties of a university in Malaysia, resulted in four learner awareness scales, with 9 items for Survival, 4 items for Establishing Stability, 4 items for Approval and 4 items for Loving to Learn. A fresh sample of 331 randomly selected undergraduate students from the same university was used to test the final version of the LALQ which had acceptable Cronbach alpha values for scale reliabilities. The LALQ was then validated using discriminant and convergent validation with two well established instruments the R-SPQ-2F and the AGQ-R. The overall results show that the LALQ is a reliable and valid tool to measure student learning and is easy for students to relate to and complete. This instrument is also significantly correlated to the R-SPQ-2F and the AGQ-R. The LALQ is a simple self-reporting questionnaire that teachers and students can use to evaluate the learning that takes place in the classroom. It is also aimed at providing teacher with a relevant tool to use for evaluation and research in their classroom.

Keywords: validation and development of LALQ, student awareness, learning

1. Introduction

The reasons why individuals learn and how they learn are important information that will help teachers design better materials and facilitate students. A recent phenomenological study by Choy et al. (2014) found that student approaches to learning (SAL) fall into four awareness levels: survival, establishing stability, approval and love of learning. The study revealed that students are likely to talk about their learning experiences in terms of these four levels. The Learner Awareness Level Questionnaire (LALQ) is developed based on the results from the study and literature from other studies on student approaches to learning. Many of the questionnaires developed to determine SAL used mainly western populations and were later modified for use among Malaysian students (Goh & Matthews, 2010). Hence the purpose of the LALQ is to assess how and why Malaysian students learn having taken into consideration the influence of the Malaysian culture on SAL (Choy et al., 2015) during its development. This instrument is also designed to be comparable to other more establish instruments measuring SAL, such as the Revised Two Factor Study Process Questionnaire (R-SPQ-2F) (Biggs, Kember & Leung, 2001) and the Achievement Goal Questionnaire Revised (AGQ-R) (Elliot, Murayama & Pekrun, 2011) so as to give reliable and usable information to students, teachers and administrators from a Malaysian context.

The LALQ is developed with three criteria in mind. Firstly, the questionnaire must be short enough to allow for frequent administration and it needs to provide quick useful information to teachers on how to better facilitate learning in their classrooms and information to students on how and why they learn. According to Quick and Davis (1979), simple-to-use self-reporting instruments have many methodological assets. It allows students to observe their own behaviours and provides a simple and effective yardstick to measure their overall progress, information useful for teachers and administrators. Secondly the items need to accurately measure important aspects of student learning that will indicate their approach to learning. Thirdly the questionnaire must have high reliability that shows relevance to students' learning (Cohen, Manion & Morrison, 2000; Mason 1996) and developed from the Malaysian context so as to provide useful information for students, teachers, and administrators.

This paper describes the development of the LALQ a self-report measure of how and why students learn and its correlation with two well established instruments for student learning and strategies to learn. The factor structure of the items on the questionnaire was taken from two independent samples where exploratory factor analysis and validity testing was carried out together with determination of internal consistency. Finally this paper will also discuss the usefulness of the information gathered with the questionnaire to students and teachers.

2.1 Learner Awareness

Student awareness of learning is defined as the process of increasing comprehension of the subject content and the ability to use the material learned (Bell, 1993). However, this definition does not consider the role played by the feelings and attitudes of students toward that material they have to learn. Marton and Booth (1997) stresses that the learning process needs to be studied from the perspective of students as they actively 'construct' their own meaning from the learning. This process involves the emotions that student have towards

learning. Hence for learning to occur there must be 'meetings of awareness' where teachers shape knowledge in ways that helps students understand it. Combinations of the three aspects of learning, affective, behavioural and cognitive are needed for learning to occur. These aspects results in the continued growth and learning in individuals and determines how information is taken in and connected into something meaningful. Within the three aspects are multiple levels of learning that progresses from basic surface learning to the more complex deep learning (Biggs, 1999). When taken from the social constructivist perspective (Vygotsky, 1986) learning is social in nature hence requires the incorporation of thoughts, feelings and behaviour of the individual. In order to empower learners, von Glasersfeld (1995) argues that they must be able to think for themselves and all learning is instrumental in bringing this about. Hence learning is useless in isolation.

Entwistle (2000) suggests that learning results in broadening students' awareness of the nature of learning. This involves students having a fully developed conception of learning, being aware of the different contexts in which it takes place and eventually being able to adapt it to various tasks. Hence the development of critical and analytical thinking is crucial for this to happen. Students need to be active participants of their learning (Raiker, 2009). However, studies by Boyle (2011) finds that students tend to be more resistant to approaches that require them to be active participants than a teacher-centred approach where they have less control over their own learning.

Whether students develop deep or surface thinking will not only depend on the direct transmission of information by the teacher but more on the approaches they actively engage in during the process (Biggs, 1999). As these students learn, they interact with the world and their conception of things will change resulting in an expansion of their awareness (Biggs & Tang, 2007). A study by Choy et al. (2014), finds that students tend to talk about their learning experiences in terms of four awareness levels: survival, establishing stability, approval and love of learning regardless of their achievement levels which had similarities to the descriptors of deep and surface learning (Biggs, 1999) and to achievement goals which were purpose driven (Elliot, Murayama & Pekrun, 2011). The Survival level describes their fear of authority in learning situations and how they fulfil a need when learning which Tay and Diener (2011) attributes to establishing well-being. Establishing Stability describes their need to establish safety and security for their future and how they related this to learning. Approval describes their need to please and be socially accepted by others and how these are related to learning. Loving to Learn describes an individuals' motivation to acquire new skills and build on existing ones. The results from this study supported by literature from other similar studies on learning were used to develop the LALQ.

2. Method

2.1 Development of the Learner Awareness Questionnaire

The preliminary measure of the learner awareness questionnaire consisted of 36 items which were generated after reviewing the results from the phenomenological study on students'

learning awareness by Choy et al. (2014) and the existing literature on student learning (Elliot, Murayama & Pekrun, 2011; Biggs & Tang, 2007; Entwistle, 2000; and Biggs, 1999). The items addressed students' awareness of how and why they learned and how they think and hence were divided into three sections. As there were no existing equivalent measure of learner awareness, all the items on the preliminary questionnaire were generated based on results from the study by Choy et al. (2014) and existing literature on learning approaches.

Most approaches to the validation of psychometric questionnaires will use principal components analysis (PCA) and factor analysis (FA) (Tabachnick & Fidell, 2014). This allows the summarisation of patterns of correlation among the observed variables and reduces the number of observed variables. However, PCA and FA do not provide readily available criteria against which to test the solution obtained. Therefore, this study used other well established questionnaires to determine if the LALQ is measuring SAL adequately providing meaningful data and information. Hence after the second EFA, the factors obtained were correlated with the R-SPQ-2F and AGQ-R using the discriminant and convergent validation process.

Each item on the questionnaire was rated using a 5-point Likert scale, with a 5 indicating Strongly agree, 4 Agree, 3 Neutral, 2 Disagree and 1 Strongly disagree. The neutral option was included as a response choice to allow for better psychometric coherence when the items were considered as a whole and there was little effect on the overall reliability and validity (Dassa et al., 1997). Further to this, the study was interested to assess the convictions of students towards why and how they learn, in terms of their firm convictions. The neutral response is different from a "no opinion" and a "don't know" as it represented a conviction (Dassa et al., 1997).

The 36 item questionnaire was given to five academic staff members who were not in the research team at the university where the study took place. The group of people were asked to comment on the questionnaire and point out any linguistic ambiguities. Items that had inadequacies were modified. This new instrument was named the Learner Awareness Questionnaire (LALQ).

2.2 Testing the Questionnaire-Exploratory Factor Analysis

2.2.1 First Exploratory Factor Analysis

The 36 items LALQ was administered to 172 undergraduate students (89 female and 83 male). A total of 26 of them were enrolled in a Bachelor degree programme and 146 were enrolled in a Diploma programme. The sample consisted of all full time students from a number of faculties. The consent of each participant was obtained and the questionnaire was done as a paper and pencil exercise. The data was then encoded and entered into SPSS (Version 16) for initial analysis.

Two indicators were tested for sample appropriateness before conducting the Exploratory Factor Analysis (EFA). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy index was 0.74 and Bartlett's Test of Sphericity was significant $\chi^2 = 1877.14$, $p < 0.0001$, indicating that the sample and correlation matrix were within an acceptable range for the

analysis.

The EFA was used to assess fit, eliminate non-fitting items and detect possible factor structure. Principal component analysis and varimax rotation was used to analyse questionnaire soundness. The scree plot and acceptance of eigenvalues greater than one, together with the comparison of a parallel analysis of an equivalent set of eigenvalues obtained from a random data set of the same size, were used to identify the number of factors likely to be extracted. See Figure 1 for the scree plot of the first EFA. Only eigenvalues that exceeded the corresponding values from the random data set were retained. Initial analysis with a factor loading of 0.40 was used as the cut off point for variable acceptance. There were 12 factors with eigenvalues greater than one, accounting for 65.9 per cent of the variance in the respondents' scores. Rotation converged after 23 iterations. The first four factors accounted for 37.5 per cent of variance in the respondents. The eigenvalues of the first four factors were higher when compared to the parallel analysis of an equivalent random data set. Based on the results, it was decided that a criterion loading of higher than 0.45 would be used to select items for further analysis. This yielded 21 items with loadings ranging from 0.45 to 0.79. Therefore, 21 of the original 36 items were selected for further testing. It was decided a second EFA will be carried out with a different population of students.

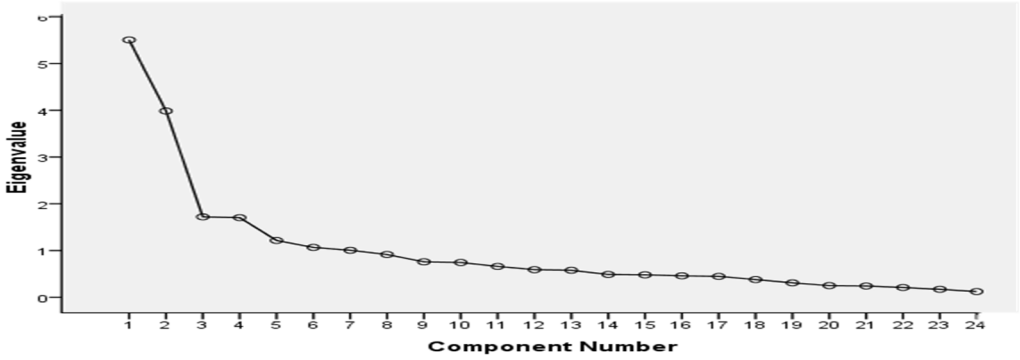

Figure 1. First EFA Scree Plot

2.2.2 Second Exploratory Factor Analysis

Another group of 331 students (178 female and 153 male) participated in the second study. All of these students were enrolled in a Diploma programme. The age ranges of the sample were as follows: 311 were between 16-20, 17 between 21-23 and three between 24-26. These students were from a number of faculties and were all full time at the university. The consent of all the participants was obtained and the questionnaire was done as a paper and pencil exercise. The data was then coded and entered into SPSS (Version 16) for analysis.

The KMO measure of sampling adequacy was 0.80 and the Bartlett's Test of Sphericity was $\chi^2 = 2009.22$, $p < 0.0001$. Both the values met the required standards for exploratory factor analyses. The principal factor analysis and varimax rotation of the 21 items yielded four factors with loading ranging from 0.42 to 0.86. Eigen values greater than one accounted for

60.8 per cent of the variances in the students' score. The scree test suggested that only three or four factors could be extracted, hence these possibilities were examined. Only factor loading above 0.40 were used. The items with the three-factor solution did not show clear indications that it fell into any of the four awareness levels: survival, establishing stability, approval, and loving to learn. In the four factor solution (Table 1), items related to the four awareness levels clearly loaded into each of the factors.

Table 1. Factor Analysis with Varimax Rotation for the Learner Awareness Questionnaire

Scales	Typical Items	Items	Factor 1	Factor 2	Factor 3	Factor 4
Survival	My family wants me to study so I think I have no choice but to listen to them	Q1	.750			
	To please my parents, I enrolled in this programme although I do not like it	Q2	.731			
	I study because my parents want me to.	Q3	.741			
	I am studying in this institution because I want to please my parents	Q4	.670			
	I have always thought that I had no choice about going to school	Q5	.583			
	I do my course work because I do not want to disappoint my parents	Q6	.507			
	I signed up for this programme because my friends signed up for it	Q7	.454			
	I give up easily especially when i feel the subjects are difficult	Q8	.446			
	I learn because I want a better future	Q9	.410			
Establishing Stability	I am studying now so that I can have a good job in the future	Q10		.794		
	Passing examinations is important to me for a secure future	Q11		.778		
	I make sure I go for my classes because what I learn can be applied to my future	Q12		.652		
	I will just memorise my notes rather than analyse them	Q13		.616		
Approval	I think my friends will be impressed if I do well in my studies	Q14			.692	

	I am confident I can do the work required in this programme and graduate on time	Q15			.659	
	I feel confident I can pass my examinations with good grades	Q16			.609	
	I think I will have more friends if I do well in my studies	Q17			.596	
Loving to Learn	I think learning is fun	Q18				.802
	I find learning interesting	Q19				.795
	I love learning all through my school year until now	Q20				.772
	I like to think of new ways to learn	Q21				.608
Cumulative Percentage Variance (after rotation)			14.84	26.42	37.72	46.30

2.2.3 Reliability and Validity of the LALQ

The reliabilities for each of the factors on the LALQ were compared with two other tests: the R-SPQ-2F and AGQ-R. These tests were administered together with the LALQ. The comparison of the factors of the LALQ with the other two instruments (Table 2) show strong reliabilities for each of the sub-scales. The sub-scales of the R-SPQ-2F has been established by Biggs (1987) and the sub-scales for the AGQ-R has been established by Riou et al. (2012).

Table 2. Reliabilities of the Sub-Scales for the LALQ, R-SPQ-2F and AGQ-R

	Reliability (α)			
LALQ	Survival	Establishing Stability	Approval	Loving to Learn
	0.78	0.75	0.60	0.77
R-SPQ-2F	Deep Motive	Deep Strategy	Surface Motive	Surface Strategy
	0.66	0.69	0.56	0.61
AGQ-R	Mastery-approach Goal	Mastery-avoidance Goal	Performance-approach Goal	Performance-avoidance Goal
	0.60	0.66	0.79	0.77

After the items were generated they were subjected to an assessment of content validity. This process will serve as a pretest, permitting the deletion of items that are deemed to be conceptually inconsistent. According to Field (2012) there is no generally accepted quantitative index of content validity and judgement must be exercised in validating a measure. Hence the LALQ was given to four researchers with research interests in students' approaches to learning for their evaluation and comments. The resulting evaluations and comments were incorporated in the LALQ used for the discriminant and convergent validation process.

Correlation between scales has been widely used to validate psychometric instruments, like the Asian Partner Abuse Scale (Tzou, 2008), the Emotional Intelligence Measure (Fukuda,2011), the Youth Social Capital Scale (Koutra et. al., 2012) and the Gambler's Belief Questionnaire (Winfree, Meyers & Whelan, 2013). This approach to validation of psychometric instruments has proven effective hence the LALQ was also subjected to a similar process.

As the R-SPQ-2F and AGQ-R have been well established and measures student learning experiences and perceptions, they will be used to validate the current questionnaire using Pearson correlation. The R-SPQ-2F was developed based on the notion that students' perceptions of their learning related activities are central to teaching and learning (Biggs, Kember & Leung, 2001). The AGQ-R was developed to determine students' approach in how they seek to master a task and progress to mastering it (Riou et al., 2012).

The R-SPQ-2F was developed from an earlier Study Process Questionnaire (Biggs, 1987). The 20-item self-rated questionnaire yields two Approach scores: Surface and Deep with a component Motive and Strategy score for each Approach. It measures "what students does" in terms of their on-going approach to learning and results in being able to characterise teaching contexts. The confirmatory factor analysis of the questionnaire indicated a good fit to the two factor structure (Biggs, Kember & Leung, 2001).

The AGQ-R, consisting of 12 items, was developed based on the goal achievement theory including mastery-approach, performance, mastery-avoidance, and performance avoidance goals. Mastery-approach goals correspond to aiming to perform a task well or to improve in performing that task. Performance approach goals correspond to aiming to outperform others. Mastery avoidance goals consist of not making mistakes or not doing worse in a previous performance. Performance avoidance goals involve not being outperformed by others. Validation of the instrument showed good fit for the four achievement goal constructs (Elliot & McGregor, 2001).

The LALQ consists of 24 items with four scales. The survival level items of the LALQ are designed to determine students' perception of the influence of their family and friends on their learning. Survival items are designed to determine if students learn because they are pressured to learn because of family and peer pressure. Establishing stability items are designed to determine if students learn to secure a better future. Approval items are designed to determine the importance students place on gaining the approval of their peers. Loving to Learn items are designed to determine if students have developed a love of learning.

The R-SPQ-2F and AGQ-R had items that were similar to those found on the LALQ. When the items on the three instruments were matched, it was found that a majority of the items on the three questionnaires were directed at assessing how students learned. For instance, in the LALQ, 'I think I my friends will be impressed if I do well in my studies' is similar to 'I am striving to do well compared to other students' in the AGQ-R. For R-SPQ-2F the item, 'I find I can manage to pass most assessments by memorising key sections rather than trying to understand them' is similar to 'I will just analyse my notes rather than analysing them' in the LALQ. The R-SPQ-2F had comparatively more items that are similar to the LALQ. In the AGQ-R there are items about goals setting which is anticipated not to correlate with any items in the LALQ.

Based on an analysis of the three instruments it is anticipated that the survival level of the LALQ will correlate positively with the surface learning approach of the R-SPQ-2F. While approval, establishing stability, and loving to learn levels of the LALQ will correlate positively with the deep learning approach of the R-SPQ-2F. The LALQ will have a higher correlation with mastery and performance approach goals but will have a lower correlation with mastery and performance avoidance goals with the exception of the survival items.

The data for the three questionnaires LALQ, R-SPQ-2F and AGQ-R was collected using a sample of 331 students (152 female and 179 male) enrolled in diploma and degree courses. The items were made to look as if they were from one questionnaire so as not to distract the respondents.

2.2.4 Correlation Between Scales

The four awareness levels of the LALQ: Survival, Establishing Stability, Approval and Loving to Learn were correlated with the four sub-scales of the R-SPQ-2F: Deep Motive, Deep Strategy, Surface Motive and Surface Strategy. As well as with the sub-scales of the AGQ-R: Mastery Approach, Mastery Avoidance, Performance Approach and Performance Avoidance. This is to establish validity for the LALQ.

The strengths of the Pearson correlations for each of the levels of LALQ ranged from small to moderate levels as shown on Table 3. The correlation between 'Survival' and 'Establishing Stability'($r(331) = -.13$, $p < .001$) and 'Survival' and 'Loving to Learn' ($r(331) = -.20$, $p < .001$) were significant in the negative direction. The correlation between 'Survival' and Approval was small $r(331) = .024$ and not significant. The correlations between 'Establishing Stability' and 'Approval' ($r(331) = .38$, $p < .001$). 'Establishing Stability' and 'Loving to Learn' ($r(331) = .31$, $p < .001$), and 'Approval' and 'Loving to Learn' ($r(331) = .35$, $p < .001$) were significant in the positive direction. The correlational results of the various learner awareness levels were on the whole small to moderate, between $r(331) = .02$ to $r(331) = .38$, suggesting that the four levels were independent of each other.

The independence of the levels attests to the discriminant validity of the sub-scale of the LALQ indicating that the instrument is a valid measure of how and why student learn.

Table 3. Pearson Product-Moment Correlations of the Levels of LALQ

	Survival	Establishing Stability	Approval	Loving to Learn
Survival	1	-.13***	.024	-.20***
Establishing Stability		1	.38***	.31***
Approval			1	.35***
Loving to Learn				1

$n = 688$ ***$p < .001$.

Each of the levels of the LALQ had significant correlations with some of the sub-scales for the R-SPQ-2F as shown on Table 4. 'Survival' of the LALQ correlated moderately with 'Surface Motive' of the R-SPQ-2F positively ($r(331) = .37$, $p < .001$). 'Establishing Stability' had moderate positive correlations with 'Deep Motive' ($r(331) = .30$, $p < .001$) and 'Deep Strategy' ($r(331) = .30$, $p < .001$). 'Approval' had small correlations with 'Deep Motive' ($r(331) = .25$, $p < .001$) and 'Deep Strategy' ($r(331) = .26$, $p < .001$). 'Loving to Learn' correlated moderately with 'Deep Motive' ($r(331) = .40$, $p < .001$) and with 'Deep Strategy' ($r(331) = .37$, $p < .001$). The levels of the LALQ are statistically significant and moderately correlated to the sub-scales of the R-SPQ-2F indicating that the scales of the two instruments show evidence of convergent validity.

The correlations of the levels of the LALQ were significant with the sub-scales of the AGQ-R except for 'Survival' as shown on Table 4. The 'Survival' level of the LALQ had negligible correlations with all the scales of the AGQ-R. 'Establishing Stability' of the LALQ correlated moderately with 'Mastery Approach' ($r(331) = .35$, $p < .001$) of the AGQ-R. 'Approval' of the LALQ correlated moderately with 'Performance Approach'($r(331) = .34$, $p < .001$) of the AGQ-R. And 'Loving to Learn' of the LALQ was moderately correlated with 'Mastery Approach' of the AGQ-R. The levels of the LALQ were significant and moderately correlated to AGQ-R showing evidence of convergent validity for the scales of the two instruments.

Correlations among the LALQ levels, the R-SPQ-2F and the AGQ-R are included to demonstrate that each LALQ level, the R-SPQ-2F and the AGQ-R measure a distinct aspect of student approaches to learning. Note that no level of the LALQ correlates above .50 with any other scale. Also note that the LALQ is most highly correlated with the Deep Motive of the R-SPQ-2F and that this correlation is well below .80. These statistics suggest that the LALQ levels are distinct from each other and from the R-SPQ-2F and AGQ-R.

Table 4. Pearson Product-Moment Correlations of the Levels of LALQ with the Sub-scales of R-SPQ-2F and AGQ-R

LALQ	R-SPQ-2F		AGQ-R	
	Deep Motive	Deep Strategy	Surface Motive	Surface Strategy
Survival	-.10**	-.08**	.37**	.27***
Establishing Stability	.26***	.26***	-.04	.10**
Approval	.25***	.26***	.04	.15***
Loving to Learn	.40***	.37***	-.14***	-.02

n = 688, **.p <.01. ***p < .001.

5. Result and Discussion

This study presents the validation of the LALQ using two well-established and validated instruments, R-SPQ-2F and AGQ-R. The overall results show that it is a reliable and valid tool to measure student learning and is easy for students to relate to and complete.

The first and second EFA studies yielded four learner awareness levels: Survival, Establishing Stability, Approval, Loving to Learn based on 21 items instead of the original 36 items. The LALQ yields information on how and why students learn. The four levels of the LALQ are reliable with Cronbach Alpha values from 0.60 to 0.78. These values are comparable to those obtained for the R-SPQ-2F (Cronbach Alpha from 0.56 to 0.69) and the AGQ-R (Cronbach Alpha from 0.6 to 0.79).

The four levels of the LALQ had small correlations with each other suggesting that they were independent and had discriminant validity. These levels were subsequently correlated with the four sub-scales of the R-SPQ-2F and AGQ-R. As predicted the levels of the LALQ had higher correlations with the sub-scales for the R-SPQ-2F than the AGQ-R.

The Survival level of the LALQ correlated positively with Surface Motive of the R-SPQ-2F but had negligible correlations with the sub-scales of the AGQ-R. Hence, the Survival level indicates an approach to learning rather than goal orientations. The Establishing Stability level of the LALQ correlated positively with Deep Motive and Deep Strategy of the R-SPQ-2F and Mastery Approach of the AGQ-R. Suggesting that Establishing Stability of the LALQ indicates both an approach to learning where students will tend to extract meaning from what they are learning as well as the tendency toward attainment of task-based competency (Elliot, Murayama & Pekrun, 2011). The Approval level of the LALQ had moderate correlations with Deep Motive and Deep Strategy of the R-SPQ-2F and Performance Approach. Therefore the Approval level indicates the willingness to spend time learning (Biggs, 1999) as well as the need to compare well with others which is defined as and other-based goals by Elliot, Murayama & Pekrun (2011). The Loving to Learn level of the LALQ had moderate correlations with Deep Motive and Deep Strategy of the R-SPQ-2F

and Mastery Approach of the AGQ-R. This suggests that Loving to Learn indicates the compulsion students feel towards getting information about a topic they are interested in (Immekus & Imbrie, 2010) and attaining what a task requires. And measuring this task to what had been done in the past (Elliot, Murayama & Pekrun, 2011).

6. Conclusion

This article presented the development and validation of the LALQ with its four levels with the sub-scale of the R-SPQ-2F and the AGQ-R. The development process of the LALQ commenced with testing 36 items that were in the initial version of the test. The process of drawing up this pool of items was guided by the insights into how and why students learn from a study conducted by Choy et al. (2014) and approaches to student learning establish by other researchers in the field.

A process of testing and refinement resulted in a final version with 21 items divided into four levels: Survival, Establishing Stability, Approval and Loving to Learn. The Survival level consisted of nine items and the rests of the levels consisted of four items each, so the questionnaire is short enough for use by teachers. At the same time, the rigorous testing describe in this article shows that the final version of the questionnaire has good psychometric properties.

The validation process has shown that the LALQ will give an indication of why students will learn and how they will go about carrying out the learning process. The Survival level of the LALQ indicates an approach to learning while the other three levels also gives an indication of both the learning approach used (how they learn) as well as the process to achieve a learning goal hence why they learn.

The motivation for developing the LALQ was to ensure that teachers researching the learning environment in their classrooms had the relevant tools to enable them to obtain information from students. The most effective way of ensuring high quality learning is by aligning the contextual elements of teaching and learning to promote effective approaches. The LALQ would be the ideal tool for teachers to use in evaluating and researching their own classrooms. This questionnaire was designed to be easily administerd and scored. It measures student approaches to learning and it is designed to assess certain emotions students have toward learning. It is especially important for teachers to understand because emotional experiences of students can override cognitive ones (William, Mercer & Ryan, 2015). Students' emotional states helps to anticipate some of the behavioural consequences when learning however, a simple cause-and-effect relationship between them cannot be established. Hence the LALQ will give some insights into the dynamics that could influence students learning as it provides an indication of their emotional reactions toward certain contexts in their lives. Apart from helping students explore their emotional reactions to certain contexts, it also provides an insight into their mindsets toward learning as well as an insight into their belief about learning. Such information would proof useful for teachers.

References

Bell, A. (1993). Awareness of learning, reflection and transfer in school mathematics. *British Society for Research into learning mathematics* (pp. 1-6). Manchester: BSLRM.

Biggs, J. (1987). *Student approaches to learning and studying.* Camberwell: Australian Council for Educational Research.

Biggs, J. (1999). What the Student Does: teaching for enhanced learning. *Higher Education Research and Development*, *18*(1), 57-75. http://dx.doi.org/10.1080/0729436990180105

Biggs, J., & Tang, C. (2007). *Teaching for Quality Learning at University : What the Student Does (3rd Edition).* Berkshire: Open University Press.

Biggs, J., Kember, D., & Leung, D. (2001). The revised two factor study process questionnaire:R-SPQ-2F. *British Journal of Educational Psychology*, *71*, 133-149. http://dx.doi.org/10.1348/000709901158433

Boyle, T. (2011). *Learner centered teaching : Putting the research on learning into practice.* Sterling: Stylus Publishing.

Choy, S. C., Ooi, H. J., Sedhu, D. S., Liew, Y. L., Lee, M. Y., Malenee, A., et al. (2014). Students' Awareness of How and Why They Learn. *International Symposium on Education and Psychology.* Nagoya: University of Nagoya.

Choy, S. C., Sedhu, D. S., Liew, Y. L., Lee, M. Y., Malenee, A., & Anuar, N. (2015). Influence of culture on students' awareness of how and why they learn. *Malaysian Journal of Learning and Instruction*, *12*, 47-66.

Cohen, L., Manion, L., & Morrison, K. (2000). *Reaearch Methods in Education.* London: Routledge-Falmer.

Dassa, C., Lambert, J., Blais, R., Potvin, D., & Gauthier, N. (1997). The effects of neutral answer choice onthe reliability and validity of attitude and opinion items. *The Canadian Journal of Program Evaluation*, *12*(2), 61-80.

Elliot, A. J., & McGregor, H. J. (2001). A 2x2 achievement goal framework. *Journal of Personality and Social Psychology*, *80*(3), 501-519. http://dx.doi.org/10.1037/0022-3514.80.3.501

Elliot, A. J., Murayama, K., & Pekrun, R. (2011). A 3 x 2 Achievement Goal Model. *Journal of Educational Psychology*, *103*(3), 632–648. http://dx.doi.org/10.1037/a0023952

Entwistle, N. (2000). Some aspects of the teaching environment influencing approaches to studying. *Edinburgh 2000 Group.* Edinburgh.

Field, A. (2012). *Discovering statistics using IBM SPSS statistics.* London: Sage.

Fukuda, E. (2011). Cross-cultural validation of emotional intelligence measures for Japanese and Canadian university students. *Unpublished doctorial disseration, Calgary*.

Goh, P. S., & Matthews, B. (2010). Malaysian students' learning and teaching at the postgraduate level. *The Asia-Pacific Education Researcher*, 287-299.

Immekus, J. C., & Imbrie, P. K. (2010). A test and cross validation of the revised two factor study process qustionnaire factor structure among western university students. *Educational and Psychological Measurement*, *70*(3), 495–510. https://doi.org/10.1177/0013164409355685

Koutra, K., Orfanos, P., Roumelio, T., Kritsotakis, G., Kokkevi, A., & Philalithis, A. (2012). Psychometric validation of the youth capital scale in Greece. *Research on Social Work in Practice*, *22*(3), 333-343, https://doi.org/10.1177/1049731511425801

Marton, F., & Booth, S. (1997). *Learning and awareness.* New Jersey: Erlbaum.

Mason, G. (1996). Recent advances for questionnaire design for program evaluation. *The Canadian Journal of Program Evaluation*, 73-93.

Quick, S., & Davis, K. (1979). A self-reporting evaluation tool. *Journal of Extension*, 20-25.

Raiker, A. (2009). A personalised approach to improving students' learning outcomes. In C. H. Nygaard, & N. Clive Courtney, *Improving students' learning outcomes* (pp. 45-63). Copenhagen: Copenhagen Business School Press.

Riou, F., Boiché, J., Doron, J., Romain, A.-J., & Corrion, K. (2012). Development and validation of the French achievement goals questionnaire for sport and exercise (FAGQSE). *European Journal of Psychological Assessment*, *28*(4), 313–320. http://dx.doi.org/10.1027/1015-5759/a000112

Tabachnick, B. G., & Fidell, L. S. (2014). *Using multivariate statistics.* New York: Pearson.

Tay, L., & Diener, E. (2011). Needs and subjective well-being around the world. *Journal of Personality and Social Psychology*, *101*(2), 354-356. http://dx.doi.org/10.1037/a0023779

Tzou, J. C. (2008). Towards the construction and initial validation of the Asian intimate partner abuse scale. *Unpublished doctoral dissertation, Kentucky*.

von Glasersfeld, E. (1995). *Radical constructivism: A way of knowing and learning.* London: The Falmer Press.

Vygotsky, L. (1986). *Thought and language.* Boston: The MIT Press.

Williams, M., Mecer, S., & Ryan, S. (2015). *Exploring psychology in language learning and teaching.* London: Oxford.

Winfree, W. R., Meyers, A. W., & Whelan, J. P. (2013). Validation of a Spanish translation of the gambler's belief questionnaire. *Psychology of addictive behaviors*, 27(1), 274-278. http://dx.doi.org/10.1037/a0030824.