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Examining the Construct Validity of the Thai Version of the 2 × 2 Achievement Goal Orientation Scale among Undergraduate Students

Chanut Poondej and Thanita Lerdpornkulrat
Srinakharinwirot University, Thailand

Abstract:
In the literature on motivational goals, there has been an increase on the interest of a concept of the 2 × 2 achievement goal framework. However, evidences supporting the reliability and validity of this framework are still needed. The study reported in this paper was to validate the Thai version of the 2 × 2 achievement goal orientation scale by conducting a confirmatory factor analysis. Items in this framework were intended to measure student's motivational orientations toward learning achievement. Participants were 518 undergraduate students in Thailand. Descriptive statistics and reliability estimates were reported. The results revealed the validity of the four-factor structure of achievement goal orientation scale. This study contribute the empirical evidences and cross-cultural validity of the 2 × 2 achievement goal framework (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goal orientations).

Keywords: goal orientation, confirmatory factor analysis, construct validity, 2 × 2 achievement goal framework, Thailand

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Over the past two decades, achievement goal theory has been evidently used to understand how individuals approach and engage in academic activities related to achievement situations. Initially, achievement goal theory has used a dichotomous framework in which mastery and performance goals represented contrasting orientations. A mastery goal orientation has been theorized to correlate with a focus on mastering tasks, developing competence, gaining knowledge, and intrinsic interests of learning whereas a performance goal orientation has been defined as a focus on demonstrating competence, outperforming others, avoiding incompetent situations, and the extrinsic values. Performance goal orientations were considered as maladaptive when compared with mastery goal orientations (Ames & Archer, 1988; Dweck &

Leggett, 1988; Elliot, 2005; Nicholls, 1984). However, there have been some evidences to support that performance goals are beneficial in some situations (Harackiewicz, Barron, & Elliot, 1998; Pintrich & Garcia, 1991). Theorists suggested to replace the traditional mastery-performance goal framework with the trichotomous framework by dichotomizing the performance goal into approach and avoidance dimensions. The approach-performance dimension refers to the desire to demonstrate ability and outperform others, whereas the avoidance-performance refers to the desire to avoid failure, and not being inferior to others (Elliot & Church, 1997; Elliot & Harackiewicz, 1996).

More recently, according to a further revision of achievement goal theory, Elliot and McGregor (2001) proposed a 2 × 2 achievement goal framework by applying an avoidance dimension to a mastery goal. Therefore, this framework consisted of four goals: mastery-approach; mastery-avoidance; performance-approach; and performance-avoidance. In the mastery-avoidance goal construct, competence was defined as "the absolute requirements of the task or one's own pattern of attainment" and incompetence was defined as "the focal point of regulatory attention" (Elliot & McGregor, 2001, p. 502). Students with mastery avoidance goal orientation focus mainly on avoiding a failure to develop competence, avoiding misunderstanding, and avoiding not to learn or master the task.

However, despite the four-factor conceptualization (2 × 2 achievement goal framework) was introduced by Elliot and McGregor (2001) over the past decade, there still have been much more studies applying a trichotomous model than a 2 × 2 model (Van Yperen, Elliot, & Anseel, 2009). One problem mentioned in the literature on applying the 2 × 2 achievement goal model to the study was that some constructs of this framework were still quite difficult for participants to understand and interpret when they were responding to the items of self-reported questionnaires. In particular, the concept of mastery-avoidance goal has been still under debate and needed to be more clarified (Ciani & Sheldon, 2010; Marzouq, Carr & Slade, 2011, as cited in Carr & Marzouq, 2012).

In quite a few countries, this 2 × 2 achievement goal model has been validated and used, nevertheless, most studies were done in the western countries (e.g., Baranik, Barron, & Finney, 2007; Conroy, Elliot, & Hofer, 2003; Elliot & McGregor, 2001; Wang, Biddle, & Elliot, 2007). Therefore, emerging research studies conducted in other parts of the world on the construct validity of 2 × 2 achievement goal model can help obtaining a full understanding of the cross-cultural use of achievement goal orientation theory.

Therefore, the purpose of this study was to establish the construct validity of the Thai version of 2 × 2 achievement goal orientation scale by using a confirmatory factor analysis technique. We hypothesized that our data will support the construct validity of the four-factor structure of achievement goal orientation scale.

Methods

Participants

Our samples were 518 volunteer undergraduate students in a university in Thailand. We employed convenience sampling method. More than 98% of the responses to the survey were complete. Female students comprised the majority of the final sample of our analysis (392 participants or 75.7%). In our sample, there were 42.5% of social science, 17.4% of humanities, 5.2% of health science, 17.6% of economics, and 17.4% of nursing students.

Instruments

The first section of the survey asked for general information (e.g. gender, faculty, major, GPA). The second section of the survey measured students' achievement goal orientation

(consisted of 15 items of the 2 × 2 achievement goal framework). The achievement goal orientation items were composed to reflect four goal orientations: mastery-approach (e.g., 'I feel satisfied when I learn new things in my class'); performance-approach (e.g., 'The most important thing is that other people should think of me as excellent'); performance-avoidance (e.g., 'I avoid asking questions because I don't want to look stupid'); and mastery-avoidance goal orientation (e.g., 'I worry that I may not learn all that I possibly could in this class'). Items in the Thai version measuring mastery-approach, performance-approach, and performance-avoidance were brought from prior research completed in Thailand (Poondej, Koul, & Sujivorakul, 2013) whereas mastery-avoidance items were adopted from Elliot and McGregor (2001)'s study. We employed a standard research technique of translation/back-translation (see Behling & Law, 2000) to develop our mastery-avoidance items which were initially in English language. Two bilingual researchers translated each item into Thai and reviewed them for the consensus then translated each item back into English to check whether they measured the same ideas. Finally, English and Thai versions were found to be conceptually equivalent. We used a 5-point (Likert-type) response scale from strongly disagree (1) to strongly agree (5), which larger values indicated a stronger endorsement of goal orientations.

Data Analysis

To determine the internal consistency reliability of the instrument, the coefficient Cronbach's alpha was performed. Alpha coefficient values were above the acceptable threshold of .60 (George & Mallery, 2002; Kline, 2000).

We tested the achievement goal orientation scale by using a confirmatory factor analysis (CFA). Maximum likelihood estimation methods were derived from covariance matrices. Model fit was evaluated using the following indices: 1) the chi-square (c2); 2) Comparative Fit Index (CFI); 3) Goodness of Fit Index (GFI); 4) Normed Fit Index (NFI); and 5) Rooting Mean Squared Error of Approximation (RMSEA). c2, the original fit index for structural models, is a test of differences between the observed and expected covariance matrices. Non-significant value indicates that the hypothesized model fits the data. However, one problem with the chi-square test of model fitting is that it is sensitive to the normality of the data and to the sample size; it very readily reaches significance with large sample size (Barrett, 2007; Bollen, 2005; Tinsley & Brown, 2000). Due to these drawbacks of chi-square test, therefore, we considered alternative fit statistics which were RMSEA, CFI, GFI, and NFI. The cutoff criteria for these fit indices recommended by Baumgartner and Homburg (1996), and Hu and Bentler (1999) should fall between 0 and 1. The values which are greater than .90 (for CFI and GFI), and .95 (for NFI) are considered as a good fit between the model and the data. Good fit index of RMSEA value should be at or less than .06. Moreover, ratio of the change in chi-square to degrees of freedom (c2/df) should be at or less than 2 or 3.

Results

Table 1 shows results of descriptive statistics, means and standard deviations of the measure of the 2 × 2 achievement goal orientation model. The reliability values (Cronbach's Alpha) for the measurement of 'mastery-approach', 'mastery-avoidance', 'performance-approach', and 'performance-avoidance' as sub-scales for the model were .66, .85, .84, and .76, respectively.

After using the CFA technique with the observed data, the c2 value was significant in a model (c2 = 281.258, df = 84, $p < .01$, c2/df = 3.35). Although this model had a statistically significant c2 value, it was not surprising because the c2 is sensitive to the normality of the data and to the large sample size (Barrett, 2007). Other fit indices showed the acceptance of the model

(CFI = .927, GFI = .932, NFI = .900, RMSEA = .067). Factor loadings of the items and intercorrelations among the four achievement goals are presented in Figure 1.

Table 1
Descriptive Statistics for Outcome Measures

	Males (N=126)		Females (N=392)		Total (N=518)	
	M	SD	M	SD	M	SD
mastery-approach	3.88	.58	3.82	.55	3.84	.55
mastery-avoidance	3.47	.90	3.57	.80	3.55	.82
performance-approach	3.42	.82	3.31	.76	3.34	.78
performance-avoidance	2.70	.97	2.45	.85	2.51	.88

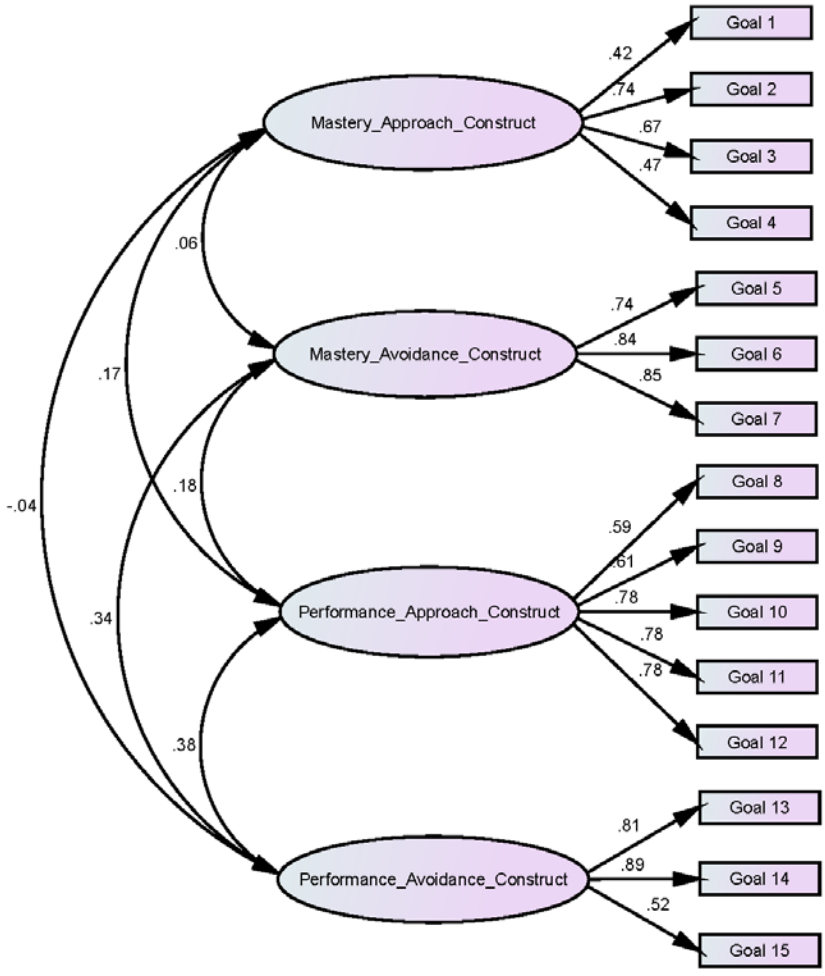

Figure 1. Confirmatory factor analysis of the achievement goal model.

Discussion and Conclusion

Although the 2 × 2 achievement goal framework has been introduced in the literature for over past two decades, most studies still used a trichotomous achievement goal model. One of the reasons is that there are not many studies on the construct validity and reliability of the 2 × 2 scale. This study was proposed to contribute to the body of knowledge on the validity of achievement goal orientation based on the 2 × 2 framework by testing constructs' reliability, and further evaluating the construct validity for the cross-cultural validity in the non-western context. Two notable findings of the current study supported and/or extended prior researches. Firstly, as expected, the results from confirmatory factor analysis showing an adequate fit with the data support the original hypothesis of the four-factor structure (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance). Our results are entirely consistent with prior researches measuring goal orientation using four-factor conceptualization in the western countries (e.g., Baranik et al., 2007; Radosevich, Allyn, & Yun, 2007). Thus, the emergence of the four-factor model of the achievement goal orientation indicated that undergraduate students in our sample understood our accurate explanations of the behaviors of a character pursuing these four types of achievement goals. In particular, we included the mastery-avoidance goal orientation in this study when most prior studies in the achievement goal literature have not included this construct in the measurement of the goal orientation. Secondly, the internal consistency values indicated the reliability of this instrument with the smallest value of .66 and the largest value of .85. Hence, our findings indicate the good evidence for employing the 2 × 2 achievement goal framework to the future studies on achievement goal orientations. Especially, mastery-avoidance construct can be added to the achievement goal orientation survey.

However, the present study contains some limitations. In CFA, although most fit indices of the four-factor model of achievement goal orientation indicated an acceptable model fit with the data, but these values did not reach the level of a good fit which should be above .95 for CFI, GFI, and NFI, and less than .05 for RMSEA (see Baumgartner & Homburg, 1996; Hu & Bentler, 1999). Secondly, as the limitation of using self-reported questionnaires, the results may not reflect the truth of participant's manner. The results may be exaggerated because participants might be too embarrassed to reveal private details.

In conclusion, the present research provides further evidences that support the independence of the four achievement goal constructs (2 × 2 framework), and also shows empirical evidences that demonstrate the validity and reliability of achievement goal orientation scale of the Thai version. We also again encourage researchers to use this 2 × 2 framework for the future achievement goal orientation studies. Furthermore, future research ought to examine the validity of this instrument in other contexts as well (e.g., high-school contexts).

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Author Notes

Chanut Poondej
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110, Thailand
chanutp@g.swu.ac.th

Chanut Poondej is a lecturer in Innovative Learning Center, Srinakharinwirot University, Thailand. His research has focused on innovative learning, online teaching and learning, critical thinking, student motivation, learning approach, classroom learning environment, and general education.

Thanita Lerdpornkulrat
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110, Thailand
thanital@g.swu.ac.th

Thanita Lerdpornkulrat is a lecturer in Innovative Learning Center, Srinakharinwirot University, Thailand. Her research has focused on student motivation, student engagement, classroom learning environment, innovative learning, STEM education, and general education.

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