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University students' personal achievement goals and perceptions of tutorial goal structures

Vennessa H. James

Flinders University, Adelaide, Australia
vennessa.james@flinders.edu.au

Shirley M. Yates

Flinders University, Adelaide, Australia
shirley.yates@flinders.edu.au

Despite the widespread adoption of tutorial classes as learning forums in higher education, few studies have investigated students' experiences of the motivational emphasis of tutorials and the relationships between students' perceptions of these goal structures, their self-reported personal achievement goals and their course achievement. Achievement goal theory is an important motivational construct as it provides explanations for students' approaches to the mastery of knowledge, skills and understandings and to performance in the academic domain. In the present study 176 university undergraduate students' personal achievement goals were measured at the beginning of a course of study (Time 1) (T1) and their perceptions of tutorial goal structures measured at the end of the final tutorial (Time 2) (T2) for the same course. Students' prior and concurrent course achievements were also collected for the same academic domain. Partial least squares (PLS) path modelling analyses using SmartPLS revealed students' self-reported mastery-approach and performance-approach goals at T1 positively and significantly influenced their perceptions of the corresponding mastery and performance tutorial goal structures at T2. Significant direct relationships were also demonstrated between prior achievement and personal mastery-approach and performance-approach goals at T1. The study highlights the role played by university students' prior achievement in predicting their personal achievement goals and their personal achievement goal orientations in predicting their perceptions of achievement goal structures in tutorials. These findings have important implications for tutorial-based learning.

Keywords: achievement goal theory, tutorial goal structures, path modelling

Introduction

Achievement goal theory is a prominent perspective of student motivation for school aged students (Kaplan & Maehr, 2007; Meece, Anderman, & Anderman, 2006; Pintrich, Conley, & Kempler, 2003) but achievement goals have been investigated in only a few studies at the tertiary level (Martin, Marsh, Debus, & Malmberg, 2008). Further, considerable evidence at the school level attests to an association between personal learning goals and classroom goal structures (Anderman & Young, 1994; Greene, Miller, Crowson, Duke, & Akey, 2004; Kaplan, Gheen, & Midgley, 2002; Kaplan & Maehr, 1999; Urdan & Midgley, 2003; Wolters, 2004), with longitudinal studies affirming direct positive relationships between mastery and performance goals measured at time one with corresponding classroom goal structures measured later at time two (Nolen & Haladyna, 1990; Roeser, Midgley, & Urdan, 1996; Urdan, 2004b; Young, 1997). However, there has been only two longitudinal studies of these relationships conducted in higher education settings (Lyke & Kelaher Young, 2006; Zusho, Karabenick, Rhee Bonney, & Sims, 2007). Several researchers have suggested personal and

classroom goals are interrelated, but the correlational nature of most of the findings to date have prevented the examination of causal relationships between them (Church, Elliot, & Gabel, 2001; Urdan, 2004a; Urdan & Midgley, 2003; Urdan & Schoenfelder, 2006; Wolters, 2004). One cross-sectional study of undergraduate students reported relationships between personal learning goals and concurrent measures of classroom goal structures (Karabenick, 2004) but there has been little investigation of prior personal goals as possible influences on how the learning environment is perceived by students (Urdan, 2004a). Similarly, the effects of prior achievement on subsequent personal learning goals and perceptions of the learning environment have not been considered at either the school or tertiary levels.

Personal achievement goal orientations

Achievement goal orientations represent an individual's reason for achievement that is more specific than general life goals, but less narrowly focused than target goals such as attaining a precise grade (Pintrich, 2000; Pintrich et al., 2003). In education settings some students adopt a mastery oriented goal focus and attend more to mastery situational cues that support learning as an active process requiring understanding, knowledge and skill development according to self-referenced standards (Elliot, 1997; Patrick, Anderman, Ryan, Edelin, & Midgley, 2001). Other students are more performance oriented and attuned to recognising performance based tutorial dynamics that support competition among students or normative, social comparisons of academic pursuits (Elliot, 1997; Patrick et al., 2001; Young, 1997). There is clear evidence that students can hold multiple goals in the classroom (Bouffard, Boisvert, Vezeau, & Larouche, 1995; Harackiewicz, Barron, & Elliot, 1998; Meece & Holt, 1993; Pintrich, 2000; Wentzel, 1992) and that multiple goal combinations have different motivation and achievement outcomes (Meece et al., 2006). However, relationships between students' domain specific prior achievement and personal achievement goals have only been investigated in a single study at the high school level (Wolters, 2004).

A four-factor goal construct of mastery-approach, mastery-avoidance, performance-approach and performance-avoidance personal orientations developed by Elliot and McGregor (2001) has been used in investigations of undergraduate students' goals for a particular course (Coutinho & Neuman, 2008; Elliot & McGregor, 2001; Malka & Covington, 2005; Van Yperen, 2006), goals for a semester (Campbell, Barry, Joe, & Finney, 2008; Finney, Pieper, & Barron, 2004; Pastor, Barron, Miller, & Davis, 2007), and goals for non-domain specific or general academic classes (Coutinho & Neuman, 2008; Donnellan, 2008). Further, the four-factor model has been found to be a better predictor of some achievement related outcomes, including the motive to avoid failure, than less complex conceptualisations of personal achievement goals (Pastor et al., 2007).

Perceived goal structures in learning environments

Achievement goal theory has been applied to the examination of learning environments and has resulted in the measurement of classroom goal structures which describe the type of motivational emphases evident in the learning environment. Mastery goal structures support students' attainment of knowledge, understanding and skills. Performance goal structures support demonstrations of superior competence to others while the goal structures of performance-avoidance encourage the avoidance of incompetence (Elliot & McGregor, 2001; Elliot & Thrash, 2001; Patrick et al., 2001; Pintrich et al., 2003; Young, 1997).

Classroom goal structure research has been conducted widely with school students using a two-factor mastery and performance model from the *Patterns of Adaptive Learning Survey* (PALS) (Midgley et al., 1998). PALS has also been used in a study of undergraduate students'

experiences of academic goal messages in lectures which found a significant, positive relationship between students' personal mastery and performance goals measured prior to an undergraduate course and their perceptions of the corresponding goal structures ($r = 0.33$, $p < 0.001$; $r = 0.19$, $p < 0.01$) at the end of the semester (Lyke & Kelaher Young, 2006). However, it is not known whether these relationships would be evident in tutorial learning environments.

The present study

The present study was designed to measure university undergraduate students' personal achievement goals, perceptions of the goal structures in a tutorial learning environment and to investigate relationships between students' personal and perceived goals and their achievement. Personal achievement goals were measured at the commencement of the first tutorial (Time 1) (T1) of a semester long course and perceptions of the tutorial goal structures at the end of the final tutorial in the same course (Time 2) (T2). Students' prior and concurrent achievement was collected for the same academic domain.

Aims

1. To measure students' personal achievement goals at the start of a course of study.
2. To measure students' perceptions of tutorial goal structures at the end of the course.
3. To investigate relationships between students' personal achievement goals, perceptions of classroom goal structures and prior and concurrent achievement.

Method

Participants

One hundred and seventy-six second year undergraduate students (142 female and 34 male) enrolled in a semester long core course in an Australian university participated at T1 and T2. Participants ranged in age from 18 to 54 years (mean age = 22.7 years, median age = 20 years) and attended one of nine tutorials which ranged in size from 22 to 27 students.

Instruments

Achievement Goal Questionnaire (AGQ, Elliot & Church, 1997; Elliot & McGregor, 2001) Personal mastery-approach and performance-approach goal orientations were each measured by six items from the AGQ developed by Elliot and Church (1997). Five items from the same questionnaire were used to measure performance-avoidance goals, with the sixth item "I'm afraid that if I ask my TA [teaching assistant] or instructor a 'dumb' question, they might not think I'm very smart" replaced by "My goal in this class is to avoid performing poorly" derived from Elliot and McGregor (2001). The latter item was substituted because its factor loading of 0.85 was superior to the factor loading of 0.58 for the original item. Mastery-avoidance was measured by three items (Elliot & McGregor, 2001).

Patterns of Adaptive Learning Survey (PALS, Urdan, 2004b, 2004c)

Sixteen items were adapted from PALS (Urdan, 2004b, 2004c) to measure students' perceptions of the mastery-approach (eight items), performance-approach (four items) and performance-avoidance (four items) goal structures of the tutorial. PALS has been found to distinguish goal structures from personal goals and has sound psychometric properties (Anderman & Midgley, 1997; Gutman, 2006; Kaplan et al., 2002; Meece et al., 2006; Roeser et al., 1996; Urdan, 2004b; Urdan & Midgley, 2003; Wolters, 2004; Young, 1997).

All AGQ and PALS items were rated on a four-point scale ranging from 1 *Strongly disagree*, 2 *Disagree*, 3 *Agree* to 4 *Strongly agree*.

Procedure

The AGQ was administered to participants at the commencement of their first tutorial at the start of the semester (T1) and PALS at the conclusion of the final tutorial of the semester (T2). Participants recorded a distinctive code on their questionnaires to facilitate data matching and were offered a small monetary honorarium as an incentive to participate on the two occasions. Prior and concurrent on-course assessments and final examination results were released by the University following participant consent.

Analyses

Responses from the 176 participants to the AGQ at T1, and PALS at T2 were entered into a Statistical Package for the Social Sciences version 15.0 (SPSS 15), together with oncourse and examinations scores for the concurrent and prior courses in the same academic domain. Data were analysed through path modelling using the partial least squares (PLS) approach and the SmartPLS software (Ringle, Wende, & Will, 2005). The variance-based PLS procedure, described as soft modelling, is considered to be useful in investigating descriptive and predictive relationships (Sellin & Keeves, 1997) particularly with samples of less than 200 participants (Chin & Newsted, 1999).

Results

PLS model analyses essentially proceeds through two stages with the reliability and discriminative validity analyses of the items and their associated latent variables in the outer model investigated first and relationships between the latent variables in the inner model estimated through bootstrapping procedures at the second stage. Figure 1 presents the results from the first stage of the analyses, with the AGQ items measured at T1 which loaded into their associated latent variables (LV) on the left side of the model and the significant items from PALS measured at T2 which loaded into their associated LVs on the right side of the model. The left side of the Path model in Figure 1 shows four of the six AGQ items measuring students' personal Mastery-approach goal orientation (Map) loaded into the Mastery-approach LV, five of the six AGQ items used to measure Performance-approach goals (Pap) loaded into the Performance-approach LV and five of the six AGQ Performance-avoidance (Pav) goal items loaded into the Performance-avoidance LV. All three items (Elliot & McGregor, 2001) used to measure Mastery-avoidance goals (Mav) loaded into the Mastery-avoidance LV. On the right side of the model in Figure 1 the perceived mastery goal structure LV is shown as being comprised of five of the eight mastery-approach (Cgmap) items from PALS, while the four PALS items measuring performance-approach (Cgpap) and three of the four performance-avoidance (Cgpav) items loaded into a single LV of perceived performance goal structure of the tutorial.

The square root of Average Variance Extraction (AVE) coefficients from the SmartPLS output is a key statistic at the first stage of the path analyses as it represents the variance extracted by the latent variable from its indicator items. In Figure 1 all of the AVE indices and item loadings for the personal mastery-approach, mastery-avoidance, performance-approach and performance-avoidance at T1 are well above the theoretically ideal value of 0.49, with the AVE indices and item loadings for the Mastery and Performance tutorial goal structure at T2 also within an acceptable range. The Cronbach alpha (α) values for the latent variables shown in Figure 1 are acceptably high while the R squared (R^2) values of 0.13 for Mastery tutorial

goal structure and 0.15 for Performance goal structure reflect the respective amounts of variance explained by the full model. These R^2 values changed slightly to 0.11 and 0.18 respectively in Figure 2 after the model was trimmed through the elimination of non-significant paths.

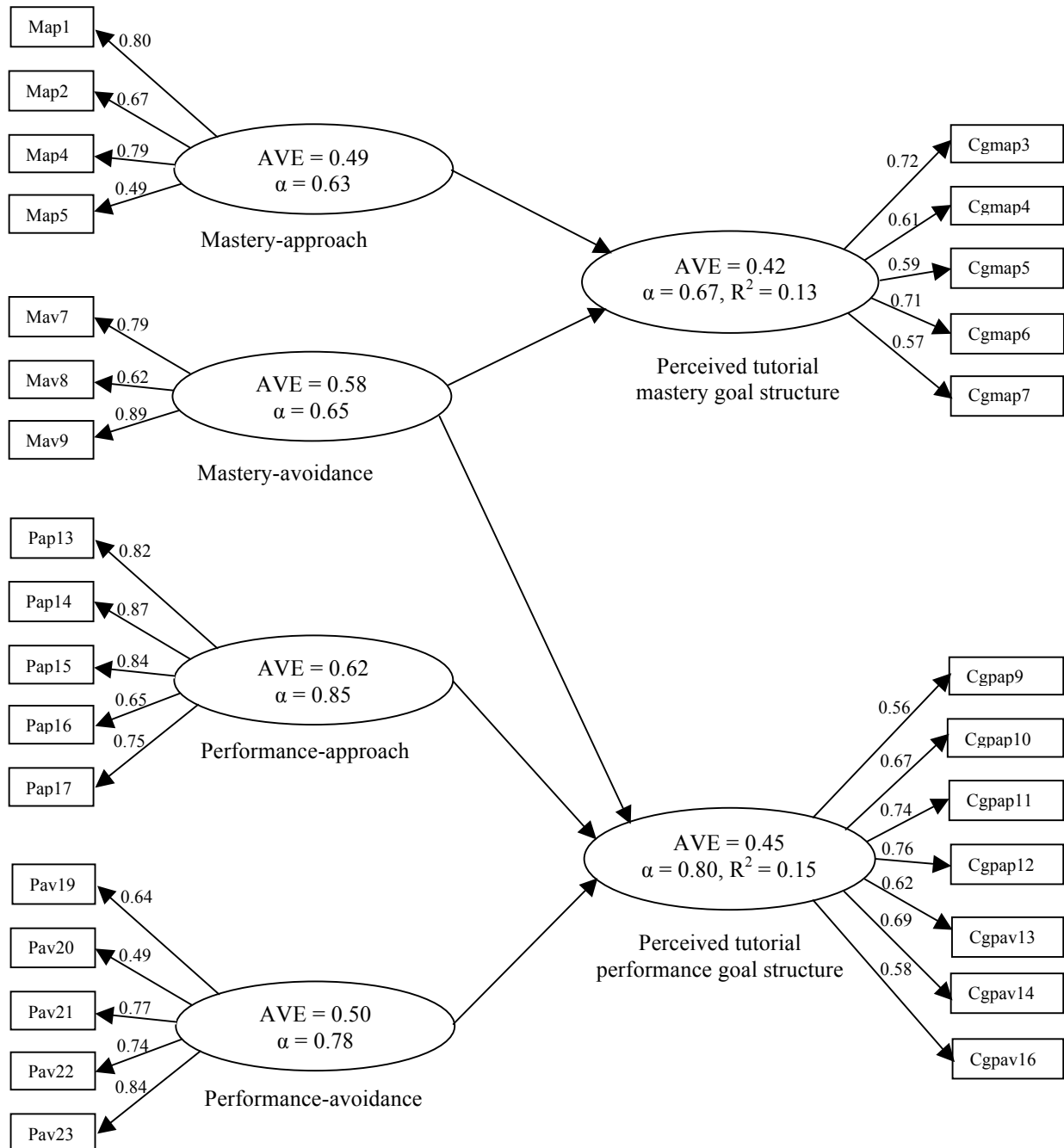


Figure 1: Path model of relationships between items, mastery and performance personal goals and perceived mastery and performance goal structures

Relationships between students' personal and perceived goals

The model in Figure 2 presents the significant path between students' personal mastery-approach goals measured at T1 and their perceptions of the mastery goal structures of their tutorial at T2. Figure 2 also shows the significant paths between students' personal mastery-avoidance, performance-approach and performance-avoidance goals measured at T1 and their perceptions of the performance goal structures of their tutorial at T2. All of the paths depicted in Figure 2 are statistically significant ($p < 0.01$) except for the nonsignificant path between mastery-avoidance goals and perceived mastery goal structures which was retained to keep the model intact. As the strongest paths in the model in Figure 2 are between personal mastery-approach goals and perceived mastery goal structures and between personal performance-approach goals and perceived performance goal structures, it was decided for the purposes of this paper to use these four latent variables in subsequent analyses which focussed on investigations of relationships between students' personal approach goals, perceived goal structures of the tutorial learning environment and prior and concurrent achievement.

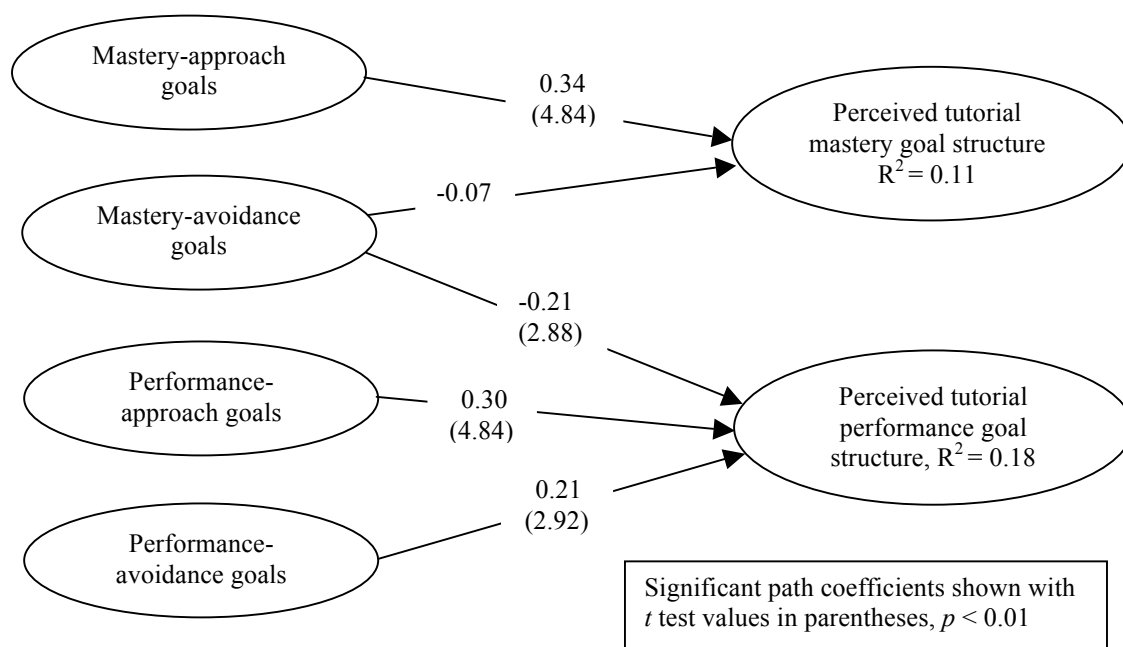


Figure 2: Path model of the significant paths between the latent variables at T1 and T2

Relationships between student achievement, personal goals and perceived goals

Figure 3 presents the path model of the relationships between student prior and concurrent achievement, personal goals and perceived goal structures of the tutorial. It is evident that coursework assessments and examination scores form the latent variables (LV) of prior and concurrent achievement depicted in the ellipses in the Path model and that the direct relationship between these LVs is very strong. There is a statistically significant direct relationship between students' achievement in the prior course and their personal mastery-approach and performance-approach goals at T1 but these personal goals are not significantly related to concurrent achievement. However, there is an indirect effect from students' prior achievement to their perceptions of the tutorial mastery and performance goal structures which is mediated by their respective personal mastery-approach and performance-approach goals.

Testing for moderation effects

A feature of SmartPLS is the ability to test obtained relationships for possible moderation effects. It was of considerable interest to investigate whether relationships between students' personal goals and perceptions of the tutorial goal structures depended upon their achievement level or their gender. Do such relationships apply equally to students of high and low achievement or to male and female students? To answer these questions, the PLS model was rerun on two occasions with the prior and concurrent course attainment latent variables added specifically as a moderator factor in the first instance. It was found that the interaction terms in these analyses were not significant. Hence, the positive effects shown in Figure 3 were found not to vary as a function of student performance, but applied to higher and lower achieving students with statistically similar levels of significance. Similarly, the model was rerun using gender as a moderator. The interaction terms were again not significant. Thus, the relationships depicted in Figure 3 represented both male and female students equally.

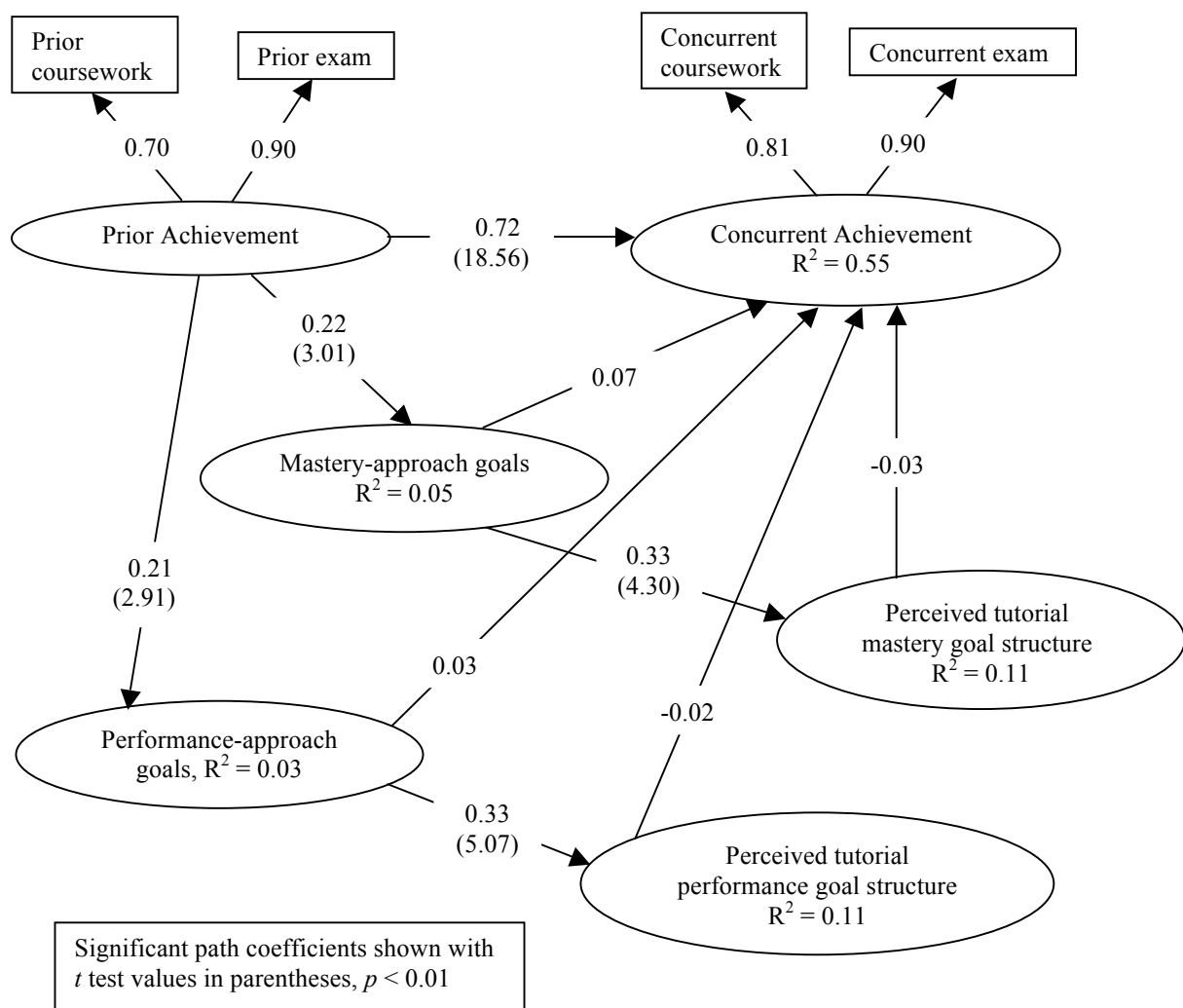


Figure 3: Path model of the relationships between student achievement, personal and perceived goals

Summary of the results

The results can be summarised as follows:

- All of the variable measures had adequate psychometric properties.
- Students' personal mastery-approach and performance-approach goals related significantly to their perceptions of the respective mastery and performance goal structures of the tutorial.
- Students' prior achievement related directly to their personal goals, with their personal goals in turn related to their perceptions of the achievement goals of the tutorial.
- Students' personal goals did not predict academic achievement at the end of the course.

Discussion

The current study measured students' personal mastery and performance achievement goals at the outset of a course of study, their perceptions of the goal structures in tutorials at the end of the same course and investigated relationships between students' personal goals, perceived goals and achievement in a higher education setting. Given the widespread adoption of tutorial classes as learning forums in universities it was important to measure personal goals at the outset of a course of study and to measure students' perceptions of the tutorial goal structures at the conclusion of the same course so that the effects of personal goals on subsequent perceptions could be investigated. Further, measurement of perceptions of the learning environment at the end of the course ensured students had had ample time to form impressions of the goal structures of their tutorial learning environment. The finding that university students' personal mastery and performance goals were related significantly and positively to their perceptions of the corresponding mastery and performance goal structures confirms results from the study by Lyke and Kelaheer Young (2006), but also extends their results to show the relationships are evident in tutorials as well as large lectures. The present study's finding also confirms previous studies with school students (e.g., Nolen & Haladyna, 1990; Roeser et al., 1996; Urdan, 2004b; Young, 1997) which have found that *students' task [mastery] orientation colors their perception of what the teacher is trying to achieve* (Nolen & Haladyna, 1990, p. 123). It is worthwhile to note that the relationships between students' personal goals and perceptions of the tutorial goal structures were independent of their level of prior achievement or their gender.

The current study also demonstrated that prior oncourse assessments and examination results predicted university students' personal achievement goals in a course in the same academic domain. This finding supports the domain specific study with high school students (Wolters, 2004) and may help to explain the non-significant relationship between general high school performance and course specific first-year university personal achievement goals in another study (Harackiewicz, Barron, Tauer, & Elliot, 2002). Previous studies have indicated university students' achievement goals tend to remain consistent across a semester (Lyke & Kelaheer Young, 2006; Zusho et al., 2007; Zusho & Pintrich, 2003; Zweig & Webster, 2004) but the findings from this study would suggest that these achievement goals are influenced by students' prior achievement. Further, prior achievement had an indirect effect on students' perceptions of the mastery and performance achievement goals of the tutorial learning environment which was mediated by their personal goals.

Further research

The finding that personal achievement goals did not predict subsequent academic achievement is clearly an area for further investigation. Analyses with Hierarchical Linear Modelling (HLM) are also required to take the nested or clustering effect of students within

tutorial classes into account (Osborne, 2000). Further research should include other measures of individual differences at the student level and other measures of student perceptions of the learning environment to elucidate the relationships between students' achievement, personal achievement goals and experiences of the learning environments of university tutorials.

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