

Full Length Research Paper

The explanatory and predictive relationship pattern between university students' goal orientation behaviours and their academic achievement

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Received 26 May, 2016; Accepted 9 August, 2016

The purpose of this study is to determine the explanatory and predictive relationship pattern between university students' goal orientation behaviours and their academic achievement. The study group consisted of 259 university students. A '2x2 Achievement Goal Orientations Scale' was used to determine the students' goal orientation behaviours. The average grades that the students got during a term were taken as the academic achievement criteria. The data were analysed using structural equation modelling (SEM). The results suggested that learning approach, learning avoidance and performance approach are not significant predictors of academic achievement at the $p < .05$ level. The findings also indicated that the relationship between learning avoidance and performance approach; learning avoidance and learning approach; learning approach and performance avoidance; performance approach and performance avoidance; and learning avoidance and performance avoidance are significant at the $p < .01$ level. The results also displayed that the relationship between performance approach and learning approach is significant at the $p < .05$ level. On the other hand, the relationship between performance approach and learning approach along with the relationship between learning approach and performance avoidance was found to be negative unlike the other relationships between the variables.

Key words: Goal orientation theory, academic achievement.

INTRODUCTION

A number of researchers have long been engaged in studying the factors that influence academic achievement. To acquire effective products of learning, the educational objectives have to be set in such a way that these would meet the requirements in each domain of the taxonomy named after Bloom and each of them

should be stressed equally. Though in the past, cognitive abilities were primarily stressed and assessed (Martin and Reigeluth, 1999), in recent years, more scientific judgements started to present an understanding of the affective domain in the learning process (Areepattamannil et al., 2011; Picard et al., 2004; Heikkila et al., 2012).

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Al Rifai (2010) argues that motivation, which is regarded as a significant factor in the affective domain, has profound impact on learning as it energizes behaviour and gives it direction. Maehr and Meyer (1997) postulated the idea that “motivation has been and probably will be at the heart of teaching and learning”, and everybody has certain assets as far as motivation is concerned. In other words, they argue that the fundamental issue is not whether individuals are motivated since they are presumed to be already motivated. At this point, the primary concern is why and how they feel motivated towards a goal (Kaplan and Maehr, 2007) rather than having or lacking motivation. For questions such as why some individuals take the plunge and set higher objectives than others and why some people constantly struggle to improve themselves while others do not, DeShon and Gillespie (2005) assert that goal orientation theory partly gives answers to these questions.

Therefore, in this present study, determining the relationship pattern between goal orientation behaviours of university students and their academic achievement would be beneficial to comprehend why some students feel more motivated, endeavour to comprehend the subject matter thoroughly and set higher goals towards particular objectives while others do not.

Research framework

Developed within the framework of the social-cognitive approach, (Brdar et al., 2006; Meece et al., 2006; Murayama and Elliot, 2011; Givvin, 2001) the goal orientation theory has been regarded as a dimension of motivation (Elliot, 1999; Pintrich, 2000; Wirthwein et al., 2013) and its framework contains both affective as well as cognitive constituents (Ames, 1992).

Goal orientation theory was first defined as “an integrated pattern of beliefs, attributions and affect that produces the intentions of behaviour” (Weiner, 1986; Ames, 1992). Functioning also as a significant means to examine the impact of various classroom settings and school environments (Meece et al., 2006; Deemer and Hanich, 2005), the major emphasis of the theory is on how students perceive themselves, how they perceive the tasks they encounter, how they react to a given objective and how they perform in a particular situation (Anderman and Midgley, 1997). In this respect, goals are the objectives which are supposed to direct individuals’ behavioural, cognitive and affective endeavours (Lee et al., 2010). In other words, goal orientation theory is about the cognitive, affective and behavioural responses that the individuals display in relation to achievement situations (Demirci, 2013). Thus, it focuses on the students’ characteristic orientations towards particular goals.

Initially, two types of goals were identified by the goal

orientation theorists: mastery goals, also called task involvement or learning goals, and performance goals, also called ego involvement or ability goals (Ames, 1992; Antoniou, 2014; Tuominen-Soini et al., 2012; Elliot et al., 1999; Was, 2006; Midgley et al., 1998; Tollefson, 2000; Pintrich, 2000; Moeller et al., 2012; Wolters et al., 2012).

According to Ames (1992), mastery and performance goals contain different notions and applications. In this sense, with a mastery goal, students tend to develop new skills; display perseverance in the face of failure; have a positive attitude towards learning; struggle to increase their proficiency; and endeavour to comprehend the materials and what they are learning (Ames, 1992; Elliot and Harackiewicz, 1996; Bong, 2004; Chen and Wong, 2015; Anderman and Midgley, 1997). A mastery goal also helps them appreciate “challenge” and to handle difficult tasks (Hoyert et al., 2012).

To Cerasoli and Ford (2014), the ultimate aim of mastery oriented students is not solely to meet the “passing criterion” but to comprehend it thoroughly. On the other hand, performance oriented students focus on products or outcomes rather than comprehending the subject matter deeply (Deemer and Hanich, 2005; Dekker and Fischer, 2008). With a performance goal, students struggle to overtake their peers and look better than them; attain praise; abstain from negative evaluations; and have a tendency to pursue relatively easier tasks (Gehlbach, 2006; Fletcher et al., 2012; Elliot et al., 1999; Hoyert et al., 2012; Huang, 2011). Attenweiler and Moore (2006) suggested that performance oriented students tend to consider failure as an inadequacy, so momentary achievements become important.

The dichotomous structure of the goal orientation theory was later expanded by adding approach and avoidance orientations (Tuominen-Soini et al., 2012; Stan and Oprea, 2015; Elliot and Harackiewicz, 1996; McCollum and Kajs, 2007; Elliot, 1999). According to McCollum and Kajs (2007) and Wigfield and Cambria (2010), the dichotomous structure was developed into a trichotomy as there emerged some different and inconsistent findings concerning mastery and performance goals due to the fact that approach and avoidance were not considered. Therefore, Elliot and Harackiewicz (1996) in their study mentioned the notions of performance approach and performance avoidance. Performance approach goals are about outperforming others, obtaining positive judgements of ability and feelings and exhibiting competence (Vansteenkiste et al., 2014; Meece et al., 2006; Cellar et al., 2011; Baranik et al., 2007), while performance avoidance goals are depicted as “striving to avoid incompetence in relation to others” (Baranik et al., 2007). Students who adopt such goals tend to abstain from getting worse results than others or being perceived as incompetent and they try not to attract negative judgements (Keys et al., 2012; Vansteenkiste et al., 2014; Elliot and Harackiewicz, 1996; McCollum and Kajs, 2007).

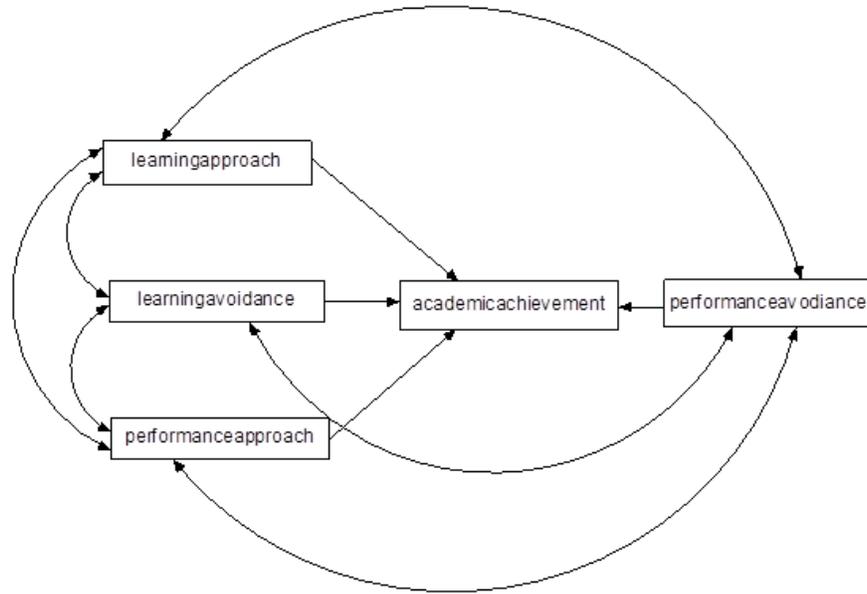


Figure 1. Proposed model.

Elliot (1999) suggested that like performance goals, mastery goals may be separated into “approach and avoidance” and thus, a 2x2 model of goal orientation emerged. According to this, some students may display mastery (learning) avoidance behaviours. These students tend to adopt the feeling of avoiding failure, they may not recollect what was learned, misunderstand the subject matter and abstain from making mistakes (Kim et al., 2015; Elliot, 1999, Senko and Freund, 2015). Some studies had forwarded the idea that there is a positive correlation between mastery learning orientation and academic performance (Wirthwein et al., 2013; Bouffard et al., 1995; Roebken, 2007; Church et al., 2001; Chan, 2008).

In addition, it is suggested that, mastery learning promotes positive outcomes and self-regulatory behaviours (Ames, 1992; Brdar et al., 2006). However, when performance goals are separated into performance approach and performance avoidance goals, the general tendency of the research attributes negative outcomes to performance avoidance goals (Ohtani et al., 2013; Chan, 2008). According to Chan (2008), while learning goals have positive impact, performance approach goals have a primarily positive but “truncated set of positive results”.

McCullum and Kajs (2007) argue that students with performance avoidance goals tend to have low academic success while students with performance approach goals are most likely to have higher achievement. Nevertheless, some studies did not yield the same results. For instance, Harackiewicz et al. (1997) suggest that mastery goals along with performance goals can pave the way for positive results in classes. Likewise, Roebken (2007), in his study, found out that, rather than

mastery goals only, the combination of performance and mastery goals tend to increase academic success.

The overall conclusion seems to be that goal orientation theory emphasizes the types of goals that individuals have and it can be assessed as a means of anticipating learning outcomes. The theory can be applied to shed light on learners’ performance and behaviours in academic environments (Nakayama et al., 2012). It is thought that determining and modelling the relationship between goal orientation behaviours and academic achievements become more of an issue. To achieve this aim, the purpose of this study is to determine the relationship pattern between goal orientation behaviours and academic achievement. Consequent to reviewing the theoretical background and studies, the proposed model was configured as shown in Figure 1.

In Figure 1, the proposed model was formed after reviewing the related literature in terms of the aforementioned variables.

METHODOLOGY

In accordance with the framework mentioned earlier, the aim of the present study is to uncover the explanatory and predictive relationship pattern between students’ goal orientation behaviours and their academic achievement.

Research model

Casual research design was applied in this study. The relationship of cause and effect between dependent and independent variables was evaluated using Structural Equation Modelling (SEM). In this study, SEM is preferred as it is used to evaluate models, ascertain

weaknesses and disclose relationships in a hypothesized model (Weston and Gore, 2006; Kline, 1998).

Participants

The participants were university students of the Basic English Department in Yıldız Technical University, İstanbul, during the 2015/2016 Academic Year. The scale was administered to a total of 270 students who were randomly chosen. 11 questionnaire sheets were ignored owing to poor feedback. Therefore, the study group consisted of 259 participants. As the received data from the participants are to be impartial and every member of the population has the same chance of being chosen, the subjects in this study were ascertained through simple random sampling (Arık, 1998). Data were collected from the students drawn from 15 classes; 80 (30.89%) were females and 179 (69.11%) males.

Instruments

2x2 Achievement goal orientations scale

The students' achievement goal orientation behaviours were determined using '2x2 Achievement goal orientations scale' which contains 4 subscales: learning approach, learning avoidance, performance approach and performance avoidance. Elliot and McGregor (2001) proposed this goal framework and tested it in three studies. The results of the factor analysis of these studies demonstrated that four of the goal constructs are independent. According to the theory, mastery-avoidance goals could be related to negative outcomes.

The scale has 26 items in total as developed by Akın (2006). 8 items focus on learning approach; 5 on learning avoidance; 7 on performance approach; and 6 on performance avoidance orientation goals. It is a five-point Likert scale and the items factor loading values were calculated from 0.41 to 0.98. The total scales' corrected-item correlation was found to range from 0.56 to 0.73. The internal consistency coefficients were between 0.92 and 0.97, and the test-retest coefficients were found to range from 0.77 to 0.86.

Assessment of academic achievement

The students' academic achievement was based on the average grades they got in the Fall Term, 2015/2016 Academic session. During the term, the students had two mid-term exams (40%), three pop-quizzes (20%), two reading exams (10%), writing portfolio work (10%), presentation and oral exam (15%) and class participation (5%).

Data analysis

The data obtained from the study were analysed using SEM. SEM is a cluster of statistical methods (Ullman and Bentler, 2013) and it presents a comprehensive and flexible assessment of observed as well as latent variables (Hoyle and Smith, 1994). Furthermore, it is also possible to use this method to test and analyse a structure of a model (Weston and Gore, 2006). Similarly, it allows evaluation and modifications of a theoretical model (Anderson and Gerbing, 1988) in that the method offers a confirmatory factor analysis (Ullman and Bentler, 2013). In other words, it can be considered as a "factor

analysis and regression or path analysis" (Hox and Bechger, 2007). As for the sample size of SEM, although there is no exact agreement, it is stated that the reasonable sample size to provide adequate data should be at least 200 (Hoe, 2008; Hox and Bechger, 2007).

RESULTS

In order to ascertain the relationship pattern between students' goal orientation behaviours and their academic achievement, the proposed model was tested and analysed using path analysis. In Figure 2, after the path analysis, the values of the proposed model and the relationship pattern between dependent and independent variables are displayed.

The AMOS Statistical Program was utilized for maximum likelihood process to test the proposed model. According to Schermelleh-Engel et al. (2003), one of the ways to test a model is to determine the values of certain goodness-of-indexes and compare them with the acceptable values. In this way, the model can be considered reliable. Thus, for the model evaluation, the values of the proposed model were shown along with the good fit and acceptable fit values in Table 1.

As observed in Table 1, the value of chi-square is '0', which is supposed to be less than three when divided by the degree of freedom (Kline, 1998). This figure shows that the model has a suitable index value in terms of the value of chi-square. The other values of the path analysis of the proposed model are as follows:

GFI=.1 (.95 ≤ GFI ≤ 1.00), NFI=.1 (.95 ≤ NFI ≤ 1.00), CFI=.1 (.97 ≤ CFI ≤ 1.00), AGFI=.94 (.90 ≤ AGFI ≤ 1.00) and RMSEA=.29 (0 ≤ RMSEA ≤ .05).

These figures, except for RMSEA, demonstrate that the model's fitness is acceptable. Nonetheless, since the value of RMSEA is not within the limits of either good or acceptable fit, the model was reviewed again and modified in accordance with the procedures of path analysis.

After necessary analysis, the one-headed row between performance avoidance and academic achievement was omitted and after the adjustment, the model was re-evaluated as in Figure 3. In Figure 3, the proposed model was modified and after the necessary adjustments it was re-evaluated.

The figures in Table 2 show that, after omitting the one headed row between performance avoidance and academic achievement, the model became compatible with the goodness-of-fit indexes. The value of chi-square after it was divided by the degree of freedom (df: 1), was 3, which is in the limits of acceptable fit. The other figures of the path analysis were found to be as follows:

GFI=0.99 (0.95 ≤ GFI ≤ 1.00), NFI=0.98 (0.95 ≤ NFI ≤ 1.00),

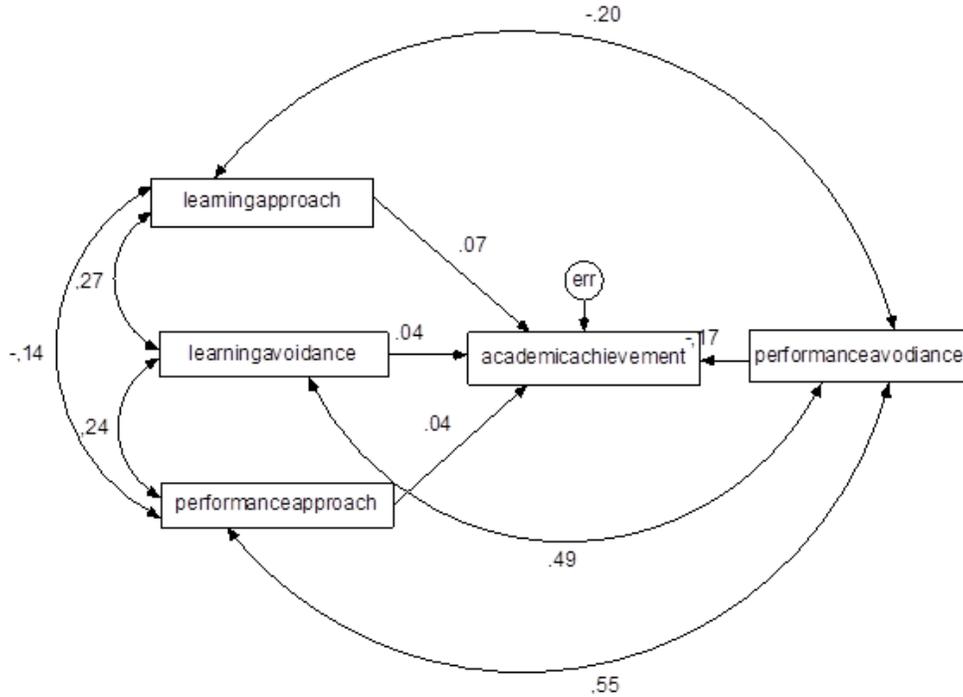


Figure 2. Values of the Proposed Model

Table 1. Values for model evaluation.

Fit measure	Good fit	Acceptable fit	The proposed model
χ^2/df	$0.0 \leq \chi^2/df \leq 2$	$2 \leq \chi^2/df \leq 3$	0.0
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq AGFI \leq .95$	0.1
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq .95$	0.1
CFI	$0.97 \leq CFI \leq 1.00$	$0.95 \leq CFI \leq .97$	0.1
RMSEA	$0 \leq RMSEA \leq .05$	$0 \leq RMSEA \leq .08$	0.29
AGFI	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI \leq .90$	0.94

RMSEA = root mean square error of approximation; NFI = Normed Fit Index; CFI = Comparative fit index; GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit-index (Schermelleh-Engel et al., 2003).

CFI=.98 ($.97 \leq CFI \leq 1.00$), AGFI=0.92 ($0.90 \leq AGFI \leq 1.00$).

As opposed to the proposed model, the value of RMSEA was found to be 0.01 which is within the limits of the recommended value ($0 \leq RMSEA \leq .05$). All these figures demonstrated that the model is compatible and the goodness-of-fitness values are within the limits.

Table 3 demonstrates that the predictive power of learning approach to predict academic achievement is 0.262, the power of learning avoidance to predict academic achievement is -0.136, and the power of performance approach on academic achievement is -0.060. It can be concluded that the learning approach (Critical Ratio-CR=1.691; $p < 0.05$), learning avoidance

(CR= -0.621; $p < 0.05$) and performance approach (CR= -0.432; $p < 0.05$) are not significant predictors of academic achievement at the $p < 0.05$ level. In Table 4, correlations, standard errors, critical ratios and 'p' values of the variables of the last model are itemized.

Table 4 displays that the relationship between learning avoidance and performance approach (CR=3.756; $p < 0.01$); learning avoidance and learning approach (CR=4.20; $p < 0.01$); learning approach and performance avoidance (CR= -3.20; $p < 0.01$); performance approach and performance avoidance (CR=7.72; $p < 0.01$) and learning avoidance and performance avoidance (CR=7.07; $p < 0.01$), are all significant at the $p < 0.01$ level. The table also shows that the relationship between

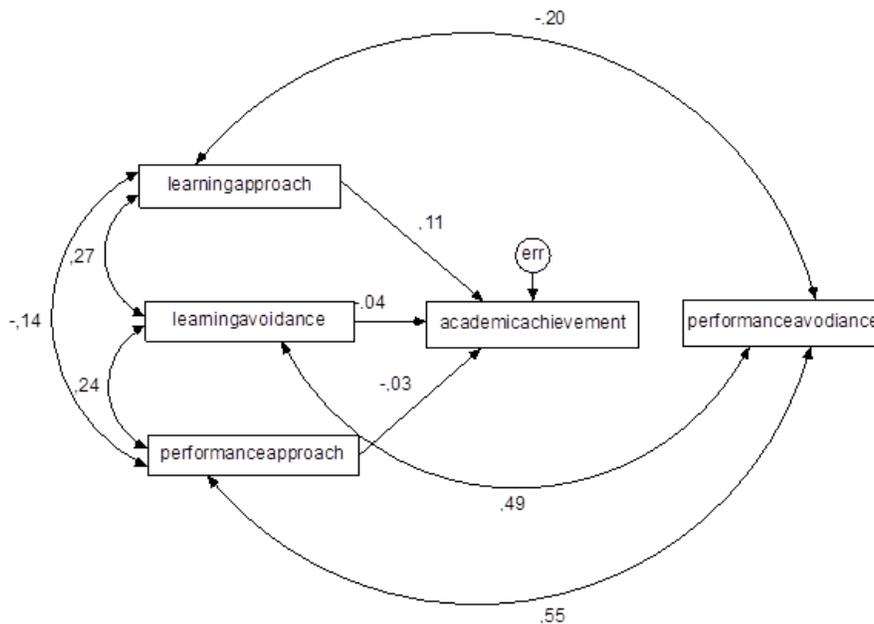


Figure 3. Values of the Final Model

Table 2. The Values of the last model.

Fit measure	Good fit	Acceptable fit	Final model
χ^2/df	$0.0 \leq \chi^2/df \leq 2$	$2 \leq \chi^2/df \leq 3$	3
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq AGFI \leq 0.95$	0.99
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$	0.98
CFI	$0.97 \leq CFI \leq 1.00$	$0.95 \leq CFI \leq 0.97$	0.98
RMSEA	$0 \leq RMSEA \leq .05$	$0 \leq RMSEA \leq 0.08$	0.01
AGFI	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI \leq 0.90$	0.92

Table 3. Regression weights, standard errors, critical ratios and 'p' values of the variables of the last model.

Variable	Estimate	St. Err.	Critical Ratio	p
Learn. Appr. → Acad. Achiev.	0.262	0.155	1.691	0.09*
Learn. Avoid. → Acad. Achiev.	-0.136	0.218	-0.621	0.053*
Perf. Appr. → Acad. Achiev.	-0.060	0.139	-0.432	0.66*

*p<.05.

Table 4. Correlations, standard errors, critical ratios and 'p' values of the variables of the final model.

Variable	Estimate	St. Err.	Critical Ratio	p
Learn. Avoid. ↔ Perf. Appr.	4.34	1.15	3.756	00*
Learn. Avoid. ↔ Learn. Appr.	4.44	1.05	4.20	00*
Perf. Appr. ↔ Learn. Appr.	-3.38	1.56	-2.15	0.03**
Learn. Appr. ↔ Perf. Avoid.	-4.22	1.31	-3.20	00*
Perf. Appr. ↔ Perf. Avoid.	12.57	1.62	7.72	00*
Learn. Avoid. ↔ Perf. Avoid.	7.38	1.04	7.07	00*

*p<.01, **p<.05.

performance approach and learning approach ($CR = -2.15$; $p < .05$) is significant at the $p < .05$ level. On the other hand, the relationship between performance approach and learning approach along with the relationship between learning approach and performance avoidance is negative unlike the other relationships between the variables.

DISCUSSION AND CONCLUSION

The primary objective of this study was to identify the relationship between students' goal orientation behaviours and their academic achievement. The findings from the research have revealed that learning approach, learning avoidance and performance approach are not significant predictors of academic achievement. The results are partly consistent with some studies in the literature. Roebken (2007) pointed out that students who adopt performance approach and performance avoidance have lower grades than those adopting learning approach and learning avoidance.

Nevertheless, in Roebken's (2007) study, students who pursue learning approach and performance approach got higher scores. On the other hand, Antoniou (2014) suggested that learning approach and learning avoidance are positive predictors of academic achievement. McCollum and Kajs (2007) argued that students who pursue performance avoidance goals tend to have low academic achievement. Likewise, Wirthwein et al., (2013), Chan (2008) and Bouffard et al., (1995) pointed out that there is a positive correlation between learning approach and academic achievement.

Also, the research revealed that the relationship between learning avoidance and performance approach; learning avoidance and learning approach; learning approach and performance avoidance; performance approach and performance avoidance; performance approach and learning approach and learning avoidance and performance avoidance are significant. These findings are similar to some previous studies such as, Wang et al., (2016) who found out in their study that all achievement goals were positively correlated with one another. Chen and Wong (2015) also suggested in their study that the paths among the types of goals were positive and significant. However, in the present study, it was discovered that the relationship between performance approach and learning approach along with the relationship between learning approach and performance avoidance is negative unlike the other relationships between the variables.

On the other hand, the results obtained in the present study did not concur with the results of several other studies. It is generally pointed out that while learning approach, learning avoidance and performance approach enhance academic achievement (Ames, 1992; Wirthwein et al., 2013; Church et al. 2001), performance avoidance is associated with lower academic scores (Ohtani et al.,

2013; Chan, 2008; McCollum and Kajs, 2007). Also, without taking other related variables such as motivation, anxiety and meta-cognitive strategies into consideration, studying goal orientation as the only variable may have impact on the results.

RECOMMENDATIONS

Certain limitations of the current study should be taken into consideration. First of all, the data were collected from the university students attending only English preparatory classes. To include students from other departments in the study may have yielded different results. Similarly, it can be recommended that, attaching related concepts such as intrinsic and extrinsic motivation, anxiety, attitude, learning strategies as well as classroom strategies into the study would be beneficial to analyse the relationships between the variables better. It is thought that determining the relationship between goal orientation behaviours and academic achievement will help teachers, policy makers, managers along with other stakeholders of educational system design learning environments.

Conflict of Interests

The author has not declared any conflict of interests.

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