Motivational and Learning Processes of University Students in a Distance Mode of Learning: An Achievement Goal Perspective

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Chi-hung Ng

The Open University of Hong Kong

Abstract

This research investigates the complex relationships between the motivational and learning processes of university students in a distance learning mode. Research on why and how Chinese distance learners engage in learning remains limited. Using the achievement goal theory as a research framework, the current study explores the motivational and learning characteristics of a group of distance learners. It is hypothesized that the nature of distance education will lead to specific goal profiles in the students involved, which will subsequently affect their use of various learning and self-regulating strategies, and subsequently their learning outcomes. This paper reports the findings from a survey study which is part of a larger longitudinal study investigating the learning processes of Chinese distance learners studying at the Open University of Hong Kong. 550 undergraduate students enrolled in an educational psychology course were sent a questionnaire assessing their achievement goals, learning strategies, self-regulatory strategies and attitudes towards the course. 334 students responded. The return rate was 60.73%. The results revealed that achievement goals operated as a frame affecting how these distance learners approached their learning and how they perceived the course. The significance of this study lies in that it provides an initial understanding of the motivational and learning processes of the Chinese distance learners. It also extends the research of achievement goal theory by exploring the effects of certain goals often found among distance learners.

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Introduction

The study of motivational and learning processes of university students has focused mainly on on-campus students. Until recently few studies have explored the complex relationships between motivation and learning among distance learners, let alone the Chinese distance learners. Given that distance education and the utilization of internet as a tool for instructional delivery are gaining grounds in the Hong Kong educational scene, and of course in every other parts of the globe, it is important to develop a better understanding of the relationships between motivation and learning among distance learners. This paper reports some preliminary results found in the first-wave of a longitudinal study which investigates the motivational and learning process of university students studying at the Open University of Hong Kong (OUHK) using an achievement goal perspective.

Achievement Goals

Achievement goals are defined as students' perceived purposes for learning engagement. Thus far, achievement goal theorists are concerned mainly with contrasting two major types of achievement goals, namely mastery and performance goals, which represent two different orientations towards academic work. Mastery goals defined as learning for the sake of understanding and mastery are a form of intrinsic motivation. Students with these goals focus overtly on the task and learning. Their aims are to improve comprehension and achieve mastery. It is generally found that this type of students will tend to expend more effort and time in challenging tasks, persist longer with difficult tasks, attribute failures to lack of effort, process information to a deeper level and use more self-regulatory strategies and other cognitive strategies securing understanding than do students embracing performance goals. Therefore students oriented towards mastery goals tend to do relatively better than performance oriented students academically (e.g. Ames, 1992; Ames & Archer, 1988; Dweck, 1986; Greene & Miler, 1996; Meece, Blumenfeld & Hoyle, 1988; Nolen, 1988; Pintrich, 1989; Pintrich & De Groot, 1990; Pintrich & Garcia, 1991).

Performance goals are concerned with achievement levels or the demonstration of one's ability or in reverse not demonstrating one's inability. Students with such goals will focus on their performance or comparing their performance with others'. Students oriented towards these goals are often characterized by a reluctance to expend effort in their studies and attribute failure to external unstable factors like difficulty of examination questions. They tend to choose easy tasks and give up in difficult situations. They often use more surface processing strategies but fewer self-regulatory strategies. As a result, these students when compared with mastery oriented students tend to have relatively lower achievement levels (e.g. Ames, 1992; Dweck, 1986; Nolen 1988; Pintrich 1989; Pintrich & DeGroot, 1990; Pintrich & Garcia, 1991).

Mastery goals are therefore described as adaptive and performance goals are labeled as maladaptive to learning. However, recent studies (e.g. Harackiewicz, Barron, & Elliot, 1998) have questioned the maladaptive nature of performance goals. Some therefore suggested that it is important to fine-tune performance goals into different categories in order to judge correctly their effects on learning. Thus far, in the literature of achievement goal research, different types of performance goals have been proposed and tested, namely, the relative ability goals (Greene & Miller, 1996) extrinsic goals (Pintrich & Garica, 1991), work avoidance goals (Meece, Blumenfeld, & Hoyle, 1988), approach versus avoidance types of performance goals (Elliot & Harackiewicz, 1996; Skaalvik, 1997). For a thorough review of research on achievement goals, please consult Urdan (1997).

Achievement goals have been studied with students in different educational levels, ranging from primary, secondary to tertiary but not among university students at a distance mode.

Aside from traditional two-goal framework discussed above, there are some other goal-like constructs found in the literature of distance education that warrant our attention, albeit that these constructs are not conceptualized using the achievement goal framework. "Professional and work related goals" in von Prummer's study (1990) is one type of goals, among other important motivational goals, commonly held by distance learners. Students with these goals are concerned specifically with utilizing a learning course for the sake of professional development and career advancement. von Prummer (1990) surveyed 2300 distance learners in the Fern University in Germany and found that professional and work-related goals were the most predominant study goals held by these distance learners. Yet these goals were least actualized. In addition, there was a gender difference in the adoption of these goals. Male students tended to show a decided preference for work related goals like "higher professional qualification", "attaining job security", and "higher income through higher qualifications" than did the women students. Given that students at OUHK are mostly full-time workers, it is therefore assumed that professional and work-related goals will be crucial in their process of learning. It can be anticipated that these goals would not be as positive as mastery goals in activating an adaptive pattern of learning, as students with these goals focus less on the learning process but more on the learning product and its utility.

Personal development goals are another category of achievement goals believed to be important for distance learners. Studying for personal development are commonly found among adult and mature learners (e.g. Beder & Valentine, 1990, Boshier, 1991). Examples of personal development goals in von Prummer's study (1990), included "proving themselves", "increasing their self-esteem", "pursuing intellectual stimulation", and "making up for a previous lack of opportunities". She also reported a gender difference in the adoption of these goals.

The last category of achievement goals relevant for distance learners is social goals. Different forms of social goals like family togetherness and communication improvement have been studied among adult learners (e.g. Beder & Valentine, 1990, Boshier, 1991). Distance learners do not immerse in their work in a lonesome manner. Students at OUHK are given tutorial support at which they have a chance to discuss their work and the course with tutors and other students face-to face. During tutorials, it is not uncommon for tutors, or students themselves, to initiate the formation of some informal social support network among students in order to help each other to learn. In this study, two forms of social goals were investigated, namely social affiliation and social welfare goals. Distance learners with social affiliation goals study the course in order to stay with their friends, to interact with them and to study together. As for social welfare goals, they are defined as distance learners' goals for promoting the welfare of their friends, family members and even the community as a whole. This latter group of social goals is crucial to distance learners engaging in professional studies, like teacher and nursing education, promoting the welfare of other people.

The Study

This study tested the validity of the concept of achievement goals using a sample of students studying in a distance mode. It is believed that the context of distance learning and the characteristics of Chinese distance learners such as being mature students, having strong career orientation, will make some specific types of goals prominent in the process of distance learning. Therefore, in addition to the traditional forms of achievement goals, i.e. mastery and different forms of performance goals, four different categories of achievement goals (professional and work-related goals, personal development goals, social affiliation and social welfare goals), which are believed to be salient in the learning process of distance learners, were included in the current study.

Elliott and Dweck (1988) theorized that each achievement goal will "run off a different "program" with different commands, decision rules, and inference rules, and hence, with different cognitive, affective, and behavioral consequences. Each goal, in a sense, creates and organizes its own world-each evoking different thoughts and emotions and calling forth different behaviors" (p.11). This study verified this theoretical position by testing the relationships among achievement goals, learning strategies, self-regulating strategies and behaviors, and learning outcome measured in terms of attitudes towards the course. It is assumed that different achievement goals will be associated with a contrasting pattern of strategies, behaviors and attitudes.

It has been proposed that perceived competence and ability mediate the effects of achievement goals on learning (Dweck, 1986; Dweck & Leggett, 1988). Inconclusive results have been found empirically regarding this theoretical conjecture (Miller, Brehrens, Greene, & Newman, 1993; Kaplan & Midgley, 1997). The current study adds to this line of thinking by evaluating the relative importance of achievement goals, efficacy beliefs, control beliefs on different form of learning strategies, self-regulating strategies and behaviors, and finally attitudes towards the course.

Method

Participants

This study involved 550 distance learners enrolled in an educational psychology offered by the Open University of Hong Kong. Using a survey mail data collection method, the sample was made up of 334 responded students. Distance learners in this sample were comprised of 274 (82%) female and 46 (13.8%) male students. 14 (4.2%) students did not give any information about their gender. Concerning age, 4 students (1.2%) were below 20, 139 students (41.6%) in 21-30 age band, 103 (30.8%) in 31-40 age band, 72 (21.6%) in 41-50 age band, 4 (1.2%) in 51-60 age band, and finally 1 (0.3%) student was in the age band of 61 or over. 11 (3.3%) students did not give any information about their age. 275 (82.3%) of these students enrolled in the B.Ed. program while the rest were in other degree programs like nursing, social science and general studies.

Procedure

550 Students enrolled in a compulsory educational psychology course of the B.Ed. (primary) program were asked to complete a questionnaire. The questionnaire was mailed to the students two months after the course started together with a letter explaining the purposes of the study. Students were required to send back the completed questionnaire using a stamped envelope provided within two weeks. 334 students (60.73%) responded and completed the questionnaire.

Measures

This section explains the measures used to assess different major constructs in this study. Reliability scores and sample items in each construct were provided in the Appendix.

Achievement goals

In this study, seven achievement goals were tested, mastery (3 items), performance (3 items), extrinsic (3 items), avoidance (3 items), professional & work related (4 items),

personal development (4 items), social affiliation (3 items) and social welfare goals (3 items). All items were set in a 5 point Likert Scale (1=strongly disagree, 5=strongly agree).

A factor analysis using varimax rotation method was conducted to evaluate the underlying structure of these goals. The result produced six distinctive factors. Table 1 shows the factor structure and item loadings. Items with loading less than .40 were not interpreted. The sixth factor contained one item and therefore was not considered appropriate to be included in the subsequent analysis.

Factor 1 consisted mainly of items related to mastery and personal development. The focus was on understanding, learning and personal development. This factor was therefore labeled "mastery for personal development". With an eigenvalue of 5.14, this factor explained 16.52% of the total variance. Item "person13", which was about boosting one's confidence, was considered more consistent with items loaded on factor 3. In addition, item "work5" showed greater relationship with factor 2. Therefore these two items were not included in factor 1. 6 items remained in this factor after deleting some items in order to improve internal consistency.

Factor 2 comprised mainly items on assessing goals related to career and professional development. It was therefore labeled "work related goals". The extrinsic goals loaded on this factor, "getting the degree" and "study in order to pass assignments and examinations", were considered acceptable, as most students enrolled in this course were teachers who want to upgrade their qualification to a degree level. To fulfill the assessment requirement of the course is, of course, related to the desire of getting the degree and subsequently to be formally recognized as qualified graduate teachers. This factor explained 11.56% of the total variance and had an eigenvalue of 3.59.

Factor 3 was made up of mainly items about students' social status. For example, SocAff16 was about studying in order to improve communication with friends; SocAff23 was about widening the social circle and making new friends; Ext14 was about not showing one's limited knowledge of the theories in the course; Person13 was about boosting one's confidence; and work21 was about improving the chance of promotion and career advancement. Therefore this factor was labeled "social enhancement goals". It explained 10.62% of the total variance and had an eigenvalue of 2.14. Person22 and Perf18 were not included in this factor, as these items had closer relationship with other factors.

Factor 4 was comprised of items related exclusively to performance like "getting good results". This factor was therefore labeled "performance goals". It had an eigenvalue of 1.55 and explained 7.94% of the total variance and was made up of 2 items after one item was dropped to improve internal consistency.

The last factor contained two items on social goals. These two goals tapped students' desire for interaction and affiliation with friends in their process of studying. It was therefore labeled "social affiliation goals". This factor had an eigenvalue of 1.16 and explained 5.22 % of the total variance.

Table 1:Achievement Goals: Factor Loadings

Items	Factor					
	1	2	3	4	5	6
Ext19	-.753					
Mas1	.720					

Person6	.680					
SocWel7	.664					
Person22	.606		.423			
Person26	.589					
Mas9	.577					
Avoid20	-.541					
Mas17	.526					
Prof25		.785				
Prof12		.744				
Prof5	.425	.742				
Ext10		.738				
Ext3		.445				
SocAff16			.648			
SocAff23			.631			
Ext14			.523			
Person13	.405		.502			
Prof21			.472			
SocWel15			.428			
Perf11				.802		
Perf2				.772		
Perf18			.418	.505		
SocWel24					.740	
SocAff4					.710	
Avoid8						.834
Extraction Method: Principal Component Analysis.						
Rotation Method: Varimax with Kaiser Normalization. **Note: Mas=mastery goals; Perf=performance goals; Ext=extrinsic goals; Avoid=work avoidance goals; Prof=professional and work related goals; Person=personal development goals; SocWef=social welfare goals; SocAff=social affiliation goals.**						

Learning strategies

Learning strategies were taken from Biggs' SPQ (1987a). 12 items selected from this established instrument for investigating university students' learning process were used to assess students' deep, surface and achieving strategies in a 5-point Likert Scale (1=seldom used; 5=frequently used). These items were re-worded in order to accommodate the special learning characteristics of distance education.

Table 2: Learning Strategies: Factor Loadings

Items	Factor		
	1	2	3
AS45	.720		
DS31	.672		
DS44	.669		
DS36	.644		
DS47	.626		
AS32	.609		
DS40	.585		
SS27		.775	
SS39		.709	
SS35		.607	
AS49			.662
SS30		.404	-.624
AS50	.451		.612
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization. **Note: AS=achieving strategies; DS=deep strategies; SS=surface strategies.**			

Factor-analyzing these items produced three factors similar to Biggs' conceptualization. Factor 1 was made up of items related to the use of both deep and achieving strategies. This is consistent with Biggs' conceptualization of an achieving-deep approach (Biggs, 1987b). This factor was therefore labeled 'achieving-deep strategies'. It had an eigenvalue of 3.93 and explained 25.85% of the total variance. Factor 2 contained mainly items assessing students' use of surface strategies. This factor had an eigenvalue of 1.71 and explained 13.46% of the total variance. The last factor was labeled "regulated strategies" as it was made up of strategies like keeping organized notes, reading information carefully. The negatively loaded item was dropped to raise the reliability score. This factor had an eigenvalue of 1.01 and explained 11.83% of the total variance.

Self-regulated strategies and behaviors

10 items were adapted from Pintrich's MSLQ (1990) for assessing students' use of self-regulation. Items on self-regulation were factor-analyzed, which produced two factors. The first factors contained 9 items and 1 item was loaded separately as another factor. Therefore, the second factor was not interpreted. The first factor was then labeled "self-regulated strategies". It explained 36.27% of the total variance and had an eigenvalue of 3.29. Additional items were selected and reworded for assessing time management (3 items), effort management (3 items), help seeking (3 items), efficacy beliefs (3 items) and control beliefs (3 items). These items were set in a 5 point Likert Scale (1=strongly disagree; 5=strongly agree).

Attitudes

This construct was formed by 10 items assessing students different attitudes towards learning the specific subject in a 5-point Likert Scale (1=strongly disagree; 5=strongly agree). Attitudes involved students' interest in the subject, their perceived values of the subject, their intention to do similar courses or continuing to further their knowledge in this subject. In addition, there was a general item asking students to rate if they enjoy doing the course.

Factor analyzing these items using a varimax rotation method resulted in one single factor, which was labeled "attitudes towards course". This factor had an eigenvalue of 3.61 and explained 51.52% of the total variance.

Results

Correlation

Table 3 shows the correlation matrix. Mastery goals for personal development were correlated positively with achieving-deep strategies, regulated strategies, self-regulated strategies, time management, effort management, help seeking, efficacy beliefs, control beliefs and attitudes towards the course. Strong relationships were found with achieving-deep strategies and attitudes towards the course. Negative correlation was found between mastery goals and surface strategies. This pattern of relations is consistent with previous findings regarding mastery goals (c.f. Ames & Archer, 1988)

Performance goals correlated positively with achieving-deep strategies, regulated strategies, self-regulated strategies, time management, effort management, help seeking, efficacy beliefs, and control beliefs. Compared with mastery goals for personal development, performance goals related to the above variables in a relatively weak fashion. Performance goals were not significantly related to surface strategies and attitudes towards the course. This pattern of association is in tune with the recent research findings about the positive effects of performance goals with a relative ability focus (e.g. Harackiewicz, Barron, & Elliot, 1998). The current findings again confirmed that it is advisable to distinguish between different types of performance goals.

Work related goals correlated weakly with regulated strategies but not significantly to other two forms of learning strategies. In addition, work related goals were not significantly related to self-regulated strategies, time management and help seeking. However, they were positively related to efficacy beliefs, control beliefs and attitudes towards the course in a mild manner. This pattern of relations reveals that work related goals has limited motivational effects on learning. It is therefore not advisable to promote adult learning merely through work-related goals. Studying for the sake of career advancement can at best be treated a form of extrinsic motivation with limited positive effects.

Social enhancement goals related positively with achieving-deep and surface strategies but not significantly with regulated strategies. This pattern of findings is intricate as these goals correlated positively with two types of strategies that are considered generally as orthogonthal in the literature (e.g. Biggs, 1987b). Such an intricate pattern of relation was repeated with self-regulated strategies and behaviors. In specific, social enhancement goals were not related significantly to time and effort management, and help seeking behaviors but correlated with self-regulated strategies positively. They also correlated with efficacy belief and control belief as well as attitudes towards the course in a positive manner. This mixed

pattern of relationships between social enhancement goals and different forms of learning related strategies and behaviors needs further exploration and the current theoretical understanding of these goals is not elaborated enough to guide empirical testing.

Table 3: Correlation Matrix

	MPD	Perf	Work	SocEn	SocAf	AD_S	R_S	S_S	Self_R	Time	Effort	Help	Effic	Cont	Att
MPD	1.000	.113*	.181*	.447*	.025	.456*	.135*	-.177*	.316*	.194*	.243*	.151*	.318*	.364*	.652*
Perf	.113*	1.000	.215*	.286*	.114*	.195*	.149*	.043	.244*	.191*	.156*	.132*	.329*	.134*	.060
Work	.181*	.215*	1.000	.211*	.186*	.088	.131*	.015	.035	.027	.124*	.059	.163*	.201*	.214*
SocEn	.447*	.286*	.211*	1.000	.272*	.213*	.105	.120*	.169*	.046	-.015	.061	.191*	.128*	.236*
SocAf	.025	.114*	.186*	.272*	1.000	.006	-.010	.214*	.016	-.070	-.035	.077	-.012	-.030	-.013
AD_S	.456*	.195*	.088	.213*	.006	1.00	.395*	-.281*	.713*	.470*	.407*	.411*	.429*	.412*	.553*
R_S	.135*	.149*	.131*	.105	-.010	.395*	1.000	-.131*	.360*	.288*	.234*	.169*	.202*	.239*	.211*
S_S	-.177*	.043	.015	.120*	.214*	-.281*	-.131*	1.000	-.267*	-.152*	-.155*	-.178*	-.235*	-.214*	-.302*
Self_R	.316*	.244*	.035	.169*	.016	.713*	.360*	-.267*	1.000	.473*	.427*	.382*	.445*	.327*	.405*
Time	.194*	.191*	.027	.046	-.070	.470*	.288*	-.152*	.473*	1.000	.368*	.274*	.278*	.189*	.211*
Effort	.243*	.156*	.124*	-.015	-.035	.407*	.234*	-.155*	.427*	.368*	1.000	.275*	.295*	.321*	.292*
Help	.151*	.132*	.059	.061	.077	.411*	.169*	-.178*	.382*	.274*	.275*	1.000	.277*	.300*	.211*
Effic	.318*	.329*	.163*	.191*	-.012	.429*	.202*	-.235*	.445*	.278*	.295*	.277*	1.000	.509*	.391*
Cont	.364*	.134*	.201*	.128*	-.030	.412*	.239*	-.214*	.327*	.189*	.321*	.300*	.509*	1.000	.488*
Att	.652*	.060	.214*	.236*	-.013	.553*	.211*	-.302*	.405*	.211*	.292*	.211*	.391*	.488*	1.000

Note*: *=p<.001*. MPD=mastery goals for personal development; Work=work-related goals; SocEn=social enhancement goals; SocAf=social affiliation goals; AD_S=achieving-deep strategies; R_S=regulated strategies; S_S=surface strategies; Self_R=self-regulated strategies; Time=time management; Effort=effort management; Help=help seeking; Effic=efficacy beliefs; Cont=control beliefs; Att=attitudes towards the course.

Social affiliation goals correlated positively with surface strategies only. They were not significantly related to other learning strategies, regulated behaviors and attitudes towards the subject. In other words, a desire to learn with friends does not contribute positively to the learning process but will probably have detrimental effects since these goals drive students' focus away from the learning task.

In general, the current findings demonstrated that mastery goals for personal development were beneficial to learning. They would probably lead to the development of an adaptive pattern of learning. Performance goals can also be considered as adaptive, albeit not as positive as mastery goals. However, performance goals did not affect students' attitudes towards the course. Work-related goals could elicit very limited motivation. Effects of social enhancement goals were mixed and social affiliation goals were found to be detrimental to learning.

Regression

Prior research (e.g. Miller, Brehrens, Greene, & Newman, 1993; Kaplan & Midgley, 1997) showed that students' perceived competence is an important predictor of learning outcomes. It may moderate the effects of achievement goals on performance. Therefore, a series of regression analyses were conducted to compare the relative predictive ability of efficacy beliefs, control beliefs and achievement goals on the use of strategies and attitudes towards the course. Two sets of hierarchically ordered regression were conducted:

1. Regressing efficacy beliefs, control beliefs and achievement goals on various strategies
2. Regressing efficacy beliefs, control beliefs, learning strategies, self-regulated strategies and other self-regulated behaviors, and finally achievement goals on attitudes towards the course.

Predicting the use of various strategies

Table 4 shows the result of the first set of regression analyses.

In the first set of regression, different learning strategies, self-regulating strategies and behaviors were taken as the outcome variables, while efficacy beliefs, control beliefs and achievement goals were entered accordingly as predictors. Efficacy and control beliefs were entered in step 1 and all achievement goals were entered in step 2.

The results, as expected, showed that efficacy beliefs were important predictors for achieving-deep and surface strategies; in addition, they also predicted the use of various self-regulatory strategies and time management. Control beliefs were also significant in predicting the use of achieving-deep and regulated strategies. In addition, they were also significant in predicting effort management and help-seeking behaviors.

Table 4. Beta Coefficient

Predictors (arranged in order of entry)	Achieving-deep strategies	Regulated strategies	Surface strategies	Self-regulated strategies	Time management	Effort management	Help Seeking
Efficacy beliefs	.20*	.08	-.15*	.29*	.19*	.11	.11
Control beliefs	.17*	.15*	-.09	.10	.01	.19*	.24*
Mastery for Personal development goals	.34*	.01	-.20*	.19*	.14*	.21*	.07
Performance goals	.08	.06	.06	.14	.15*	.14*	.07
Work related goals	-.06	.05	.01	-.11	-.05	.05	-.02
Social enhancement goals	-.04	.04	20*	-.01	-.09	-.20*	-.08
Social affiliation goals	.03	-.03	.14*	.04	-.04	-.01	.09

Note: *=p<.001

Mastery goals for personal development maintained to be a significant predictor for the use of learning strategies, self-regulated strategies, time management and effort management despite that they were entered after efficacy and control beliefs.

Performance goals were significant in predicting time and effort management but not in the use of different forms of learning related strategies. Work related goals were not significant in predicting all the dependent variables. Social enhancement and social affiliation goals demonstrated their detrimental effects on learning as they predicted the use of surface strategies only. In addition, social enhancement goals also predicted negatively effort management.

Predicting the attitudes towards the course

In predicting the attitudes towards the course, the independent variables were entered in blocks. The first block contained efficacy and control beliefs, the second block involved three learning strategies, the third block was made up of four different forms of self-regulated strategies and behaviors, and finally the fourth block contained all the achievement goals. The resulting regression equation was significant (R square=.58, F (d.f.14, 294)=28.83, p<.001). Five variables were significant in predicting the outcome attitudes: control beliefs (b =.17, p<.001), surface strategies (b =-.13, p<.01), achieving-deep strategies (b =.24, p<.001), work related goals (b =.01, p<.05) and mastery goals for personal development (b =.47, p<.001). Again, mastery goals for personal development were the most important predictor for attitudes towards the course.

Discussion

The findings demonstrated that achievement goals, consistent with other goal researchers' theorization and past findings (e.g. Ames, 1992; Dweck, 1986) serve as a framework to stipulate different patterns of cognitions, behaviors and affects in learning. They affect how students approach learning and how they perceive the learning materials. In this study, mastery goals for personal development demonstrated their adaptive nature in that these goals were associated with the use of strategies that secure understanding, comprehension and organization. They were also associated with different forms of monitoring strategies and behaviors. Above all, mastery goals for personal development were associated with positive attitudes of the course and they remained to be a strong predictor of these affective outcomes. This pattern of association is similar to the previous findings on mastery goals.

What is novel here is that Chinese distance learners' conception of mastery goals involves a personal dimension-personal development. In other words, mastery goals for the participants in this study are not purely for understanding, comprehension and mastery of learning materials as tested in the previous studies. Mastery goals are not just an end but also a means for attaining something personally treasured by these distance learners. This added personal dimension to mastery goals may change how mastery goals should be defined theoretically.

Performance goals in the current study with their overt concern with achievement and grades had positive relationships with some important facilitative learning and regulating behaviors. Therefore performance goals with a focus on relative ability or high achievement are not maladaptive.

Work-related goals in the current study are not akin to learning. Due to its negative association with most of the strategies and regulating strategies, work-related goals can be understood as a type of extrinsic motivation having little positive effect on learning and learning outcomes. However, it should be noted that work-related goals in this study have incorporated two extrinsic goals into their construction. It can then be argued that the limited motivational effects of work-related goals could be attributed to the presence of these extrinsic goals. The fact that these extrinsic orientations were loaded into work-related goals may indicate that the participants of this study, of whom most are teachers studying for qualification upgrading, focused more on getting the degree for career consideration than polishing professional knowledge for better practice. In other words, it may be argued that effects of work-related goals may depend on individuals' ultimate purpose for career development. The work-related goals in this study can be taken as an extrinsic type of motivation, focusing on career advancement, promotion and probably higher pay. There may be another form of work-related goals which concerns mainly with improving professional knowledge, polishing essential skills, and developing better practice. This latter type of work-

related goals should have positive effect on learning and will be likely to associate with an adaptive pattern of learning. Future research should try to distinguish these two forms of work related goals.

As for the social goals, more effort is needed to explicate their effects. The mixed effects of social enhancement goals indicate that our current theoretical delineation on the effects of social goals on learning is not adequate (Urdan & Maehr, 1995). Achievement goals theorists may need to consider other ways of conceptualizing the effects of social goals (Ng, 1997) or different ways to define them (c.f. Wentzel, 1989, 1991 & 1992). In addition, self-report measures in a questionnaire format may not be an effective way to investigate social goals.

It is appropriate to end this discussion with some cautionary notes. The current findings should be taken as tentative, as the composition of the participants in this study was gender biased, course specific and profession confined. Female participants in the teaching profession studying a compulsory course of a degree program dominated this study. Therefore, these limitations restrict the generalization of the findings. It is interested to investigate how Chinese distance learners in different courses, working in different professions, with diverse biographical characteristics perceive purposes for learning and approach it. In addition, it is crucial to understand why some distance learners orient towards a surface mode of learning characterizing by an emphasis on extrinsic type of work-related goals and the use of surface strategies. Some students may have adopted such a superficial learning orientation out of some temporary difficulties, such as work load, health and family burdens, which are often cited as barriers to the completion of distance learning program (Carr, Fullerton, Severino & McHugh, 1996; Effeh, 1991). Alternatively some may have developed this form of learning orientation as a stable personal characteristics.

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Appendix

Major construct

Constructs	Sample items	Reliability scores
Mastery for personal development goals	• I study this course because I want to gain new knowledge • I believe by studying this course, I can broaden my life experiences	.81 (6 items)
Performance goals	• In studying course, I want to outperform other	.68 (2 items)
Work related goals	• Studying this course helps me to gain professional qualification • This course is closely related to my work.	.79 (4 items)
Social enhancement goals	• I believe my parents will be proud of me doing this degree • Knowledge in this course enable to communicate with my friends with more interesting talks.	.69 (5 items)
Social affiliation goals	• I take this course for my friends are doing it too.	.40 (2 items)
Achieving-deep strategies	• I'll try to work consistently throughout the semester and review the materials in the course regularly when the exam is close. • In reading new material, I find that continually reminded of materials I already know and see the latter in a new light.	.80 (7 items)
Regulated strategies	• I keep neat, ell-organized notes for most of different units	.60 (2 items)
Surface strategies	• I restricted my study to what is specifically set in the course as I think it is unnecessary to do anything extra.	.58

	• I think browsing around is a waste of time, so I only study seriously what's given out in study guide.	(3 items)
Self-regulated strategies	• When I study for course, I set goals for myself in order to direct myself in each study period. • I try to change the way I study in order to fit the requirements of this course and the tutor.	.79 (8 items)
Time management	• I follow the instruction in study to finish studying each unit and I make sure that I set aside enough time for the assignments.	.68 (2 items)
Effort management	• Even when the study materials are dull and uninteresting, I manage to keep working until I finish	.61 (2 items)
Help seeking	• When I don't understand the materials in this course, I ask my tutor or others for help.	.76 (2 items)
Efficacy beliefs	• I believe that I can get a good result in this course • I believe I can understand the most difficult concepts in this course	.72 (3 items)
Control beliefs	• If I study hard enough, I can understand the concepts in this course • If I learn with appropriate strategies, I can master this course	.64 (3 items)
Attitudes towards the course	• I consider that the content of this course is practically related to my work. • I find this course interesting and enjoy the time I spend in it.	.84 (7 items)