Predictive Effect of High School Students' Achievement Motivation on their Learning through Reading Strategies (LTR)

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Summary

The objective of the present study was to investigate the predictive effect of achievement motivation in a high school language arts class on students' perceptions about the strategies they use during a specific learning activity: Learning through reading (LTR). To address this topic, 740 grade 7 students from 12 public, French-speaking high schools in the region of Montreal answered two self-report questionnaires evaluating different dimensions of achievement motivation and LTR strategies. The results of multiple regression analyses (stepwise) showed that mastery approach goals and interest, followed by achievement goals and competence beliefs, best predicted four of the seven self-reported strategies associated with LTR.

Context

Research has shown the close link between motivation, achievement-related behaviours, such as strategy use, and achievement (Bandura, 1997; Pintrich & Schunk, 1996; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003). But more information is needed on relationships between particular motivational constructs and qualities of students' self-regulated engagement when LTR, and between achievement motivation as generated within a classroom context and students' self-reported engagement in LTR activities.

Achievement motivation

According to socio-cognitivism, cognitions and students' perceptions of their abilities and their school work act as mediators of behaviour and explain much of their adaptation to their physical and social environment (Bandura, 1997). In our work, we focus attention on the mediating effect of motivation on students' self-reported engagement in LTR.

The Expectancy-Value theory, inspired by the socio-cognitive approach, has been used in the last decade as a conceptual framework in a number of important studies on achievement motivation (Eccles, Wigfield, & Schiefele, 1998; Pintrich & Schunk, 1996; Pintrich & Schrauben, 1992). The expectancy component in this theory corresponds to students' beliefs about how well they will perform on upcoming tasks and relates to their perception of being able to carry out their academic projects successfully. Expectancy appears to be influenced by task specific beliefs such as competence beliefs and personal efficacy expectations (Eccles, Wigfield, & Schiefele, 1998). The Value component refers to students' interest in the given tasks and in the subject studied, as well as to the utility value, personal goals (Pintrich & Schrauben, 1992), and cost (Eccles & Wigfield, 2002). Expectacy-value theory proposes that the combination of expectancies and values influences students' achievement oriented behaviour (e.g., students who value a task highly and expect to succeed are most likely to engage actively in learning). Following on this theory, in our study we investigate links between self-reported LTR strategy use and students' perceptions of competence and control over learning (expectancy component), along with their interest and perceptions of task value (value component).

Motivation researchers have also become interested in students' achievement goals and their relation to achievement-related behaviours. Most authors distinguish at least three types of achievement goals: mastery, performance-approach, and work-avoidance (Harackiewicz, Barron, Pintrich, Elliot, & Trash, 2002; Midgley, Kaplan, & Middleton, 2001; Shim, & Ryan, 2005). Students pursuing mastery goals seek to learn from academic activities. Students focused on

performance approach goals seek to do their best in comparison to others. Finally, students pursuing work avoidance goals seek to do as little work as possible. Students adopting avoidant goals may do so because they wish to minimize the negative impact of failure and try to avoid looking incompetent according to comparative standards. For these students, efforts deployed during a task indicate a lack of skills (Covington, 2000; Linnenbrink, & Pintrich, 2002). Alternatively, certain authors suggest that for some students, the ultimate goal is to invest a minimum of effort (Bouffard, Vezeau, Romano, Chouinard, Bordeleau, & Filion, 1998; Meece & Holt, 1993). They propose that students may appreciate easy success and aim only to reach a passing grade. In our study, we focus attention on all three types of achievement goals, investigating their relationship to students' perceptions about their engagement in LTR.

Much research on achievement motivation has focused on students' perceptions and beliefs within a particular context, such as in a given domain or subject area. Other studies have studied motivation as contextualized within different kinds of learning activities. For example, Viau (1998) found differences in perceptions of task value and in self-perceptions of competence and control for secondary students across different learning activities assigned in language arts classrooms (oral, reading, and writing). But little research links achievement motivation as described by students in a given context and their self-reported engagement in a specific learning activity (e.g., LTR). This is a gap our research seeks to fill.

Learning through reading

Among all the learning activities that students experience (Weinstein, 1994), LTR appears particularly significant for success in courses (Cartier, 2000). LTR can be defined as "a process and a learning situation during which the reader/learner's goal is to learn a topic through reading texts while managing their work environment and task progress" (Cartier, 2000, p. 93). LTR is both an activity organized by a teacher and a process activated by students that encompasses reading, understanding, learning, self-regulation, experiencing positive feelings and/or managing challenging ones, and fostering and sustaining motivation.

In our research, we employ a model of self-regulated learning to characterize students' engagement in important kinds of academic work, such as LTR (Butler & Cartier, 2004; Cartier & Butler, 2004) (see Figure 1). In this model, use of LTR strategies is mediated by students' motivation about tasks within a particular context.

Several studies on LTR have shown links between certain motivational constructs and specific strategies included within our model: between motivation and strategies (Chan, 1994), between motivation (interest) and emotions (Schiefele, 1996), between prior knowledge and motivation (interest) and between these latter two and knowledge about strategies (Artlet, Schiefele et Schnieder, 2001). All of these studies have examined motivation as specific to an LTR activity.

Objectives

Considering that at school students learn in a variety of contexts (e.g., a class in a particular domain within which particular teaching and learning practices are used) (Brown, Collins, & Duguid,1989; Weinstein, 1994), each of which might influence students' achievement motivation in unique ways, the questions we ask are: How does achievement motivation generated within a particular context (in a language arts class) relate to the learning strategies students report using during a given learning activity (LTR)? Further, how do particular aspects

of motivation (expectancy, value, achievement goals) relate to self-reported use of different kinds of cognitive and self-regulating strategies (see Figure 1)?

Methods and data sources

Participants

In the context of language arts classes (i.e. French classes), 740 grade 7 students, from 12 French speaking, public high schools in the region of Montreal answered two self-report questionnaires.

Instruments

The questionnaire on achievement motivation evaluated seven dimensions in the context of learning within language arts classes:

Dimensions	Number of items	Cronbach's Alpha	Example
Competence beliefs	6 items	.82	"I am certain I can succeed in language arts."
Control beliefs	6 items	.82	"When it comes to language arts, I'm able to work hard."
Interest	6 items	.81	"What I learn in language arts is interesting."
Task value	6 items	.79	"Language arts will be useful in my future life."
Mastery approach goals	8 items	.82	"In language arts, I like difficult activities that permit me to acquire new knowledge."
Performance-approach goals	7 items	.82	"In language arts, I compete with others to get higher marks."
Work-avoidance	6 items	.73	"In language arts, I do not work much on activities that are not considered for the final grades."

The short version of the Learning through Reading questionnaire (Cartier & Butler, 2003) evaluated students' self-reported use of six types of reading and learning strategies:

Strategies	Number of items	Cronbach's Alpha	Examples
Planning	3 items	.56	Plan my time
Monitoring	9 items	.81	Check occasionally to see if my work is going well
Adjusting and self-evaluating	11 items	.83	Review the instructions
Working with information	11 items	.82	Summarize what I'm reading in my own words
Working with text	9 items	.78	Read titles, subtitles, etc.
Peripheral engagement	14 items	.76	Finish as quickly as possible

Results

The results of multiple regression analyses (stepwise) showed that, among the motivational variables retained, mastery approach goals and interest, followed by achievement goals and competence beliefs, best predicted four of the seven self-reported strategies associated with learning through reading (see Tables 1 to 6).

How does achievement motivation generated within a particular context (in a language arts class) relate to the learning strategies students report using during a given learning activity (LTR)?

In general, the results showed that achievement motivation accounted for between 9% (for planning) and 19% (for cognitive strategies for working with text) of the variance in reported cognitive strategy use. Although other variables clearly are also involved in students' engagement in learning (e.g., knowledge about strategies; knowledge about a topic under study), achievement motivation provides an important contribution to students' self-reported engagement.

How do particular aspects of motivation (expectancy, value, achievement goals) relate to self-reported use of different kinds of cognitive and self-regulating strategies (see Figure 1)?

Motivational constructs were related to both cognitive and self-regulating strategies. For cognitive strategies, all motivational variables were related to students' reported use of strategies for working with ideas (see Table 2) and they explain 13% of their variance, although only mastery goals and interest were positively related to students' reports of strategies for working with text (see Table 1), explaining 19% of the variance. In both cases, competence beliefs and utility value were negatively related to students' reported strategy use.

For self-regulating strategies, all motivational variables were related to students' reported use of strategies for planning (see Table 3), but they explained only 9% of the variance. In other results, competence beliefs, interest, performance approach and mastery goals explained 15% of self-reported use of monitoring strategies (see Table 4), and 17% of the variance in self-reported adjusting and self-evaluating strategies (see Table 5) In both cases, competence beliefs were negatively related to students' reported strategy use. Finally, for the dimension "peripheral engagement", five of the six dimensions of the motivation (all but control beliefs) explained 18% of the variance. In this case, performance-approach goals and work- avoidance goals were both positively related to more peripheral engagement (see Table 6).

These results revealed particular patterns in relationships between motivational constructs and students' self-reported engagement in cognitive and self-regulating strategies. First, achievement goals were related to engagement in ways consistent with prior research (Chouinard, Karsenti, & Roy, 2006). For example, mastery goals were highly positively related to self-reported use of both types of cognitive strategies (working with text; working with information) and with all three types of self-regulating strategies (planning, monitoring, adjusting), and were negatively related to peripheral engagement. In contrast, performance-approach goals were positively associated, though at a much lower level, with the three self-regulating strategies (planning, monitoring, adjusting/self-evaluating) and with cognitive strategies for working with text.

However, they were also highly associated with peripheral engagement (see Table 6). These findings suggest that performance approach goals may fuel positive engagement to some degree, but are more likely to be consistent with peripheral engagement. However, further analyses are needed to tease apart occasions when performance approach foster or hinder engagement.

Finally, contrary to expectations, work-avoidance goals were also somewhat positively related to self-reported use of planning strategies (see Table 1) and cognitive strategies for working with ideas (see Table 2). However, they were not predictive of monitoring, adjusting, or cognitive strategies for working with ideas. As might be expected, they were positively related to self-reported peripheral engagement. These results suggest that the relationship between mastery goals and LTR engagement is the strongest and most consistent. Performance-approach goals and work-avoidance goals were associated with peripheral engagement, but paradoxically each also seemed somewhat positively related to more positive engagement in learning.

Second, motivational constructs associated with expectancy-value theory also appeared to be related to students' self-reported engagement in LTR. Surprisingly, constructs related to students' expectations for success (competence beliefs) were negatively related to self-reported planning, cognitive strategies for working with ideas, monitoring, and adjusting. More consistent with prior research, competency beliefs were negatively related to peripheral engagement. Constructs associated with the value component of expectancy-value theory were also related in specific ways to students' self-reported LTR engagement. Perceptions of the utility of the task were, unexpectedly, negatively related to students' self-reported planning and use of cognitive strategies for working with ideas. But interest was positively related to all cognitive and self-regulating strategies, and negatively related to peripheral engagement.

Conclusions

Taken together, our findings showed some relationships between achievement motivation generated in a language arts class (general context) and the learning strategies students reported using during an LTR activity. But the relationships were small (ranging from 9% to 19%), suggesting that other factors are also predictive of LTR engagement (not surprisingly).

The results also showed distinct relationships between motivational constructs, as spurred within language arts classrooms, and students' self-reported engagement in LTR activities. In general, as expected, our findings were that mastery goals and interest are positively related to self-reported engagement. Also, the relationships with peripheral engagement were as expected for five of the motivational constructs. Here mastery goals, competence beliefs, and interest were associated with less peripheral engagement, while performance approach and work avoidance goals were associated with greater levels. It seems then that positive motivational beliefs are protective against disengaging in learning.

However, findings related to other motivational constructs were mixed. Performance-approach or work-avoidance seem to be mildly associated with positive engagement in self-regulation, but had the strongest relationship with peripheral engagement. It was also unexpected that competency beliefs and perceptions of utility were negatively related to positive engagement (although at low levels). Perhaps students who perceived their competence as somewhat lower, or perceived a task to be less useful, perceived a need to work harder to achieve.

From a scientific perspective, this research contributes to knowledge about motivation. The results reveal that students' achievement motivation predicts, to a certain extent, students' perceptions about their learning strategies in a specific situation. Our results are coherent with our model of *SRL in Complex Activities* that provides a productive framework for describing interacting components of motivation and strategies in students' engagement in LTR. As specified in the model, the motivation and learning (Collins, Brown and Newman, 1989) has to be studied in relation to different level of contextualisation including the specificity of the class, domain, and the task.

From an educational point of view, these findings provide important directions for how to better support students to succeed. For example, the relationship between interest and mastery goals in a language arts class and the engagement of students in LTR provides educators with a better understanding of factors associated with their students' engagement in learning. Moreover, discrepancies in the self-reported use of strategies found as a function of academic motivational level suggest that more research should be done to evaluate relationships between specific aspects of a class (e. g. teaching practices) and motivation and individuals' perceptions about their engagement in LTR activities.

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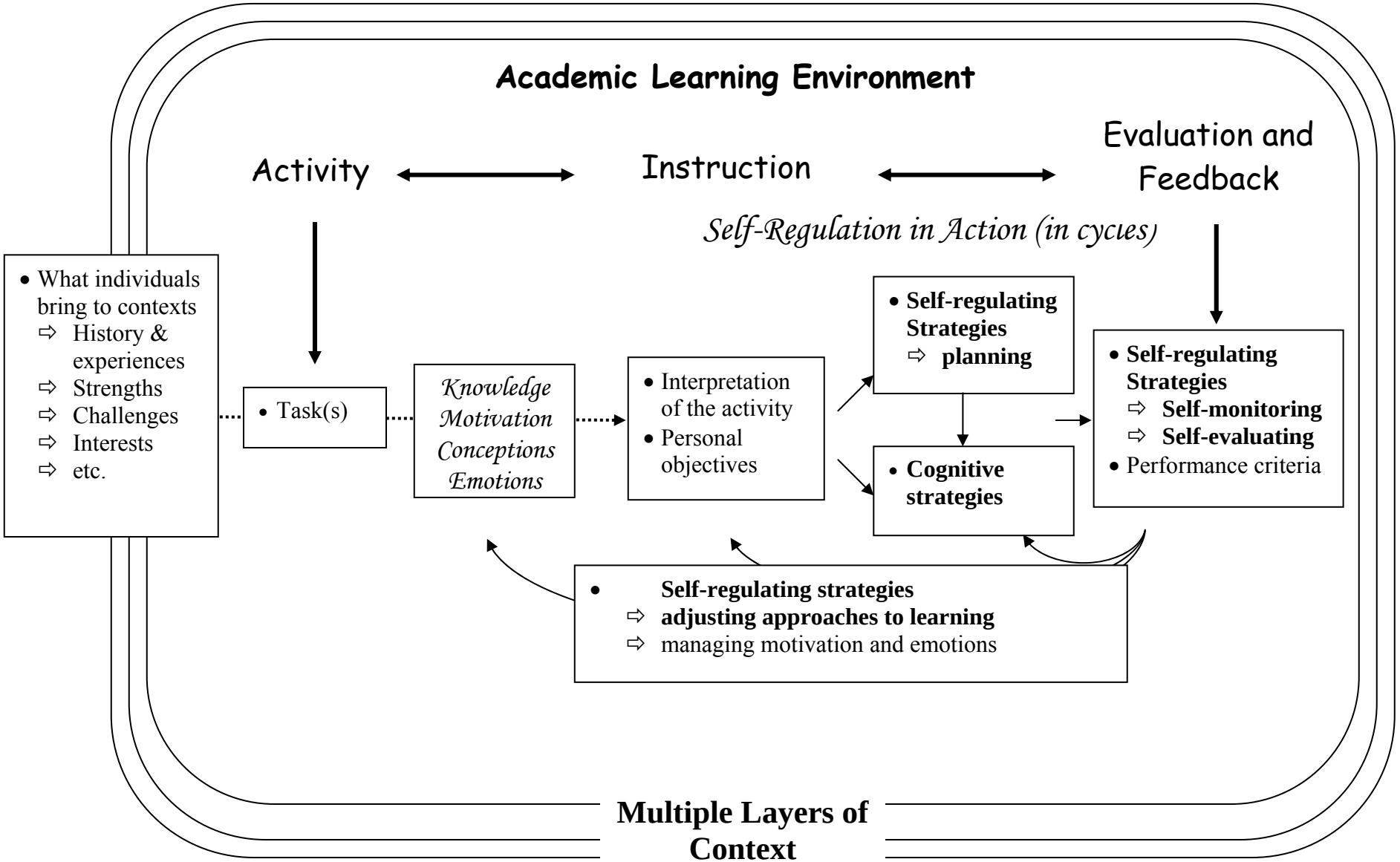

Note. The dimensions in bold are evaluated in the study, along with "peripheral engagement." This latter dimension integrates all the responses not reflective of active work on the task (e.g. finish as quickly as possible, give up, work with my friends).

Table 1
Dependent variable: Cognitive strategies for working with text

		B	*SE B*	β
Step 1				
	Constant	1.95	0.10	
	Mastery goals	0.24	0.02	.39***
	Performance-approach	-0.00	0.01	-.00
	Work-avoidance	-0.02	0.01	-.04
	Competence beliefs	0.01	0.01	.02
	Utility value	-0.01	0.02	-.03
	Interest	0.03	0.01	.06*
Step 2				
	Constant	1.95	0.10	
	Mastery goals	0.24	0.02	.38***
	Work-avoidance	-0.02	0.01	-.04
	Competence beliefs	0.01	0.01	.02
	Utility value	-0.01	0.02	-.03
	Interest	0.03	0.01	.06*
Step 3				
	Constant	1.98	0.09	
	Mastery goals	0.24	0.02	.39***
	Work-avoidance	-0.02	0.01	-.04
	Utility value	-0.01	0.02	-.03
	Interest	0.03	0.01	.06*
Step 4				
	Constant	1.96	0.08	
	Mastery goals	0.23	0.02	.38***
	Work-avoidance	-0.02	0.01	-.04
	Interest	0.03	0.01	.06*

Note R^2 = .19 for Step 1; ΔR^2 = .19 for Step 2 (ps < .95); ΔR^2 = .19 for Step 3 (ps < .56); ΔR^2 = .19 for Step 4 (ps < .37). * p < .05. ** p < .01. *** p < .001

Table 2
Dependent variable: Cognitive strategies for working with ideas

		B	*SE B*	β
Step 1				
	Constant	1,14	0,12	
	Mastery goals	0,25	0,02	,35***
	Performance-approach	0,05	0,01	,09***
	Work-avoidance	0,04	0,01	,07**
	Competence beliefs	-0,05	0,02	-,08**
	Utility value	-0,04	0,02	-,07*
	Interest	0,05	0,02	,10***

Note R^2 = .13 for Step 1. * p < .05. ** p < .01. *** p < .001

Table 3
Dependent variable: Planning strategies

		B	*SE B*	β
Step 1				
	Constant	0,90	0,14	
	Mastery goals	0,20	0,03	,24***
	Performance-approach	0,08	0,03	,10***
	Work-avoidance	0,03	0,03	,05*
	Competence beliefs	-0,06	0,02	-,09***
	Utility value	-0,05	0,02	-,06*
	Interest	0,07	0,02	,12***

Note R^2 = .09 for Step 1. * p < .05. ** p < .01. *** p < .001

Table 4
Dependent variable: Monitoring strategies

		B	*SE B*	β
Step 1				
	Constant	1,32	0,12	
	Mastery goals	0,27	0,03	,37***
	Performance-approach	0,06	0,01	,09***
	Work-avoidance	0,01	0,01	,02
	Competence beliefs	-0,06	0,02	-,09***
	Utility value	-0,03	0,02	-,04
	Interest	0,04	0,02	,07*
Step 2				
	Constant	1,38	0,10	
	Mastery goals	0,27	0,03	,37***
	Performance-approach	0,06	0,01	,09***
	Competence beliefs	-0,06	0,02	-,09***
	Utility value	-0,03	0,02	-,04
	Interest	0,04	0,02	,07*
Step 3				
	Constant	1,34	0,09	
	Mastery goals	0,26	0,02	,35***
	Performance-approach	0,06	0,01	,09***
	Competence belief	-0,06	0,02	-,09***
	Interest	0,03	0,02	,07*

Note R^2 = .15 for Step 1; ΔR^2 = .14 for Step 2 (ps < .39);
ΔR^2 = .14 for Step 3 (ps < .16). * p < .05. ** p < .01. *** p < .001

Table 5
Dependent variable: Adjusting and self-evaluating strategies

		B	*SE B*	β
Step 1				
1	Constant	1,23	,12	
	Mastery goals	,29	,03	,39***
	Performance-approach	,05	,01	,08***
	Work- avoidance	,01	,01	,03
	Competence belief	-,08	,02	-,12***
	Utility value	-,03	,02	-,05
	interest	,06	,02	,11***
Step 2				
	Constant	1,31	,09	
	Mastery goals	,29	,03	,39***
	Performance-approach	,05	,01	,09***
	Competence belief	-,08	,02	-,13***
	Utility value	-,03	,02	-,05
	Interest	,05	,02	,10***

Note R^2 = .17 for Step 1; ΔR^2 = .17 for Step 2 (ps < .26).
* p < .05. ** p < .01. *** p < .001

Table 6
Dependent variable: Peripheral engagement

		B	*SE B*	β
Step 1				
	Constant	2,40	0,09	
	Mastery goals	-0,05	0,02	-,09*
	Performance-approach	0,11	0,01	,22***
	Work- avoidance	0,04	0,01	,10***
	Competence belief	-0,07	0,01	-,14***
	Utility value	-0,02	0,01	-,05
	Interest	-0,05	0,01	-,13***
Step 2				
	Constant	2,36	0,09	
	Mastery goals	-0,06	0,02	-,11***
	Performance-approach	0,11	0,01	,23***
	Work-avoidance	0,04	0,01	,11***
	Competence beliefs	-0,07	0,01	-,14***
	Interest	-0,05	0,01	-,13***

Note R^2 = .18 for Step 1; ΔR^2 = .17 for Step 2 (ps < .11).
* p < .05. ** p < .01. *** p < .001