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Data Summary for EDPY303: Explaining relationships between students' motivation and emotions

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Funding: The data presented in this document were supported by the University of Alberta-Ludwig-Maximilians-Universität (LMU, Munich Germany) Partnership fund. This fund was created to assist in developing projects and activities between the two institutions. Activities should contribute to deepening the academic cooperation and research collaboration between UofA and LMU. In particular, this grant was led by Dr. Lia Daniels and involved Dr. Robert Klassen from the University of Alberta and Drs. Reinhard Pekrun and Anne Frenzel from LMU (July 1, 2009 to April 1, 2010). It is noteworthy that the members of this partnership range from a second-year professor at the U of A to the former Vice-President for Research at LMU, and thus represent a rare combination of experience, expertise, ingenuity, and research potential.

Current Project: Daniels and Pekrun recently published a paper that empirically validated a portion of Pekrun's control-value theory of emotions:

Daniels, L. M., Stupnisky, R. H., Pekrun, R., Haynes, T. L., Perry, R. P., & Newall, N. E. (in press). Affective antecedents, mastery and performance goals, emotion outcomes, and academic attainment: Testing a longitudinal model. *Journal of Educational Psychology.*

The results presented here reflect data that will be used for a follow-up to this early project and tests students' control and value appraisals as the mechanisms by which their achievement goals influence the emotions they experience as they move closer to an important exam.

Participants: Participants represented in this data summary were from two sections of EDPY303, the required undergraduate assessment course at the University of Alberta during the Winter 2010 semester. We would like to thank Dr. Cheryl Poth and Mr. Tim Coates for allowing this data to be collected from their students and for offering some of their very precious class time. For three consecutive classes leading up to the midterm examination, RAs attended each class to distribute and collect surveys that were designed to minimize the impact on the course. Each survey assessed a different set of variables relevant to the research question. Specifically,

Survey 1: Achievement Goals (Elliot & Muryama, 2008)
Survey 2: Expectancy and Value
Survey 3: Academic Emotions (Pekrun et al., 2005)

Students were also asked about some basic demographic information (e.g., age, gender, etc.) and to release their mark on their midterm exam as an indication of achievement information. We hope that you find this summary informative. If you have any further questions, please contact the principle investigator, Lia Daniels, at lia.daniels@ualberta.ca

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Description of Participants
All participants were from EDPY303 in Winter 2010. Participation was voluntary and unrelated
to their class in any way.

303 Enrolment	Any Survey	Survey 1	Survey 2	Survey 3	All 3 surveys
207	N=144	n=125	n=101	n=103	n=75

Forty-four percent of respondents were female, 26% male (missing for 43), the ages ranged from
20-42 years old with most students being between 22-24 years old. In total, 125 of the students
agreed to release their score on their midterm exam to the researchers.

First Survey: Achievement Goals

Using an achievement goals framework, we asked participants about the type of achievement
goals they had for their upcoming midterm exam. There are three types of personal goals that we
focused on: mastery approach (i.e., striving for competence), performance approach (i.e., striving
to demonstrate competence relative to others), and performance avoidance (i.e., striving to avoid
demonstrating incompetence relative to others). Mastery-approach goals have been found to be
generally beneficial for motivation, persistence, and achievement, whereas avoidance goals tend
to be detrimental.

Participants endorsed mastery- and performance-approach goals for their midterm about the
same, and performance-avoidance goals the least. The maximum score was 15.
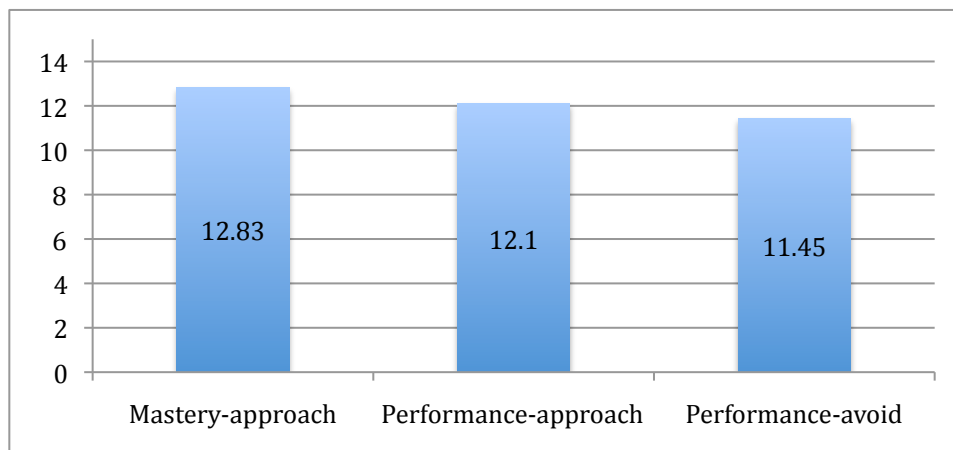
Second Survey: Expectancy and Value

We designed some expectancy and value items to align with the three different types of goals. Expectancy refers to students' expectations regarding their exam outcome and value refers to how important students see the exam. Here are examples of the items and alignment:

Goal	Expectancy	Value
Mastery-approach	I expect to master the exam.	It is important for me to master the exam.
Performance-approach	I expect to outperform others.	It is important to me to outperform others on the exam.
Performance-avoidance	I expect to perform worse than others.	It is important to me to avoid doing worse than other on this exam.

The pattern of endorsement that was found for achievement goals was largely replicated for the expectancy items but not the value items. Specifically, students endorsed mastery- and performance-approach expectancies about the same and more than performance-avoidance expectancies. However, students' performance-approach and performance-avoidance values were about the same, and both were less than their mastery-approach values. It is also interesting that all the "value" items were rated more strongly than the "expectancy" items, suggesting that the exam outcome was important to students even if they didn't expect their desired outcome. The maximum score for each variable was 10.
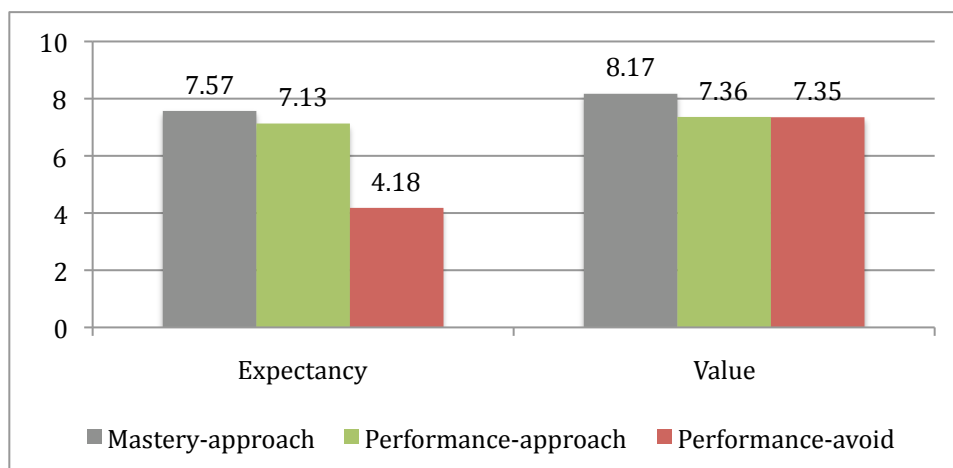
To test how well the expectancy and value items aligned with the specific goals, we correlated the scales. For all three types of goals, the relationship was stronger with value than with expectancy. Students who thought it was important to master the exam also tended to have mastery-goals. Students who thought it was important to outperform others also tended to have performance-approach goals. Students who thought it was important to avoid doing worse than others also tended to have performance-avoidance goals.

Aligned Scale	Mastery-approach	Performance-approach	Performance-avoid
Expectancy	.33*	.54*	-.17
Value	.48*	.67*	.44*

* $p < .01$

Survey 3: Emotions

The third survey was completed the class before the midterm and assessed a series of emotions that students might experience about the exam or as they study for the exam including disappointment, frustration, helplessness, anger, hopefulness, boredom, enjoyment, anxiety, shame, and pride.

The emotion endorsed the most strongly was hopefulness ($M = 3.45$) and the emotion endorsed the least strongly was helplessness ($M = 1.94$). These emotions are considered opposites and are in the desired direction: most students were hopeful about their current studying and upcoming exam outcome. Interestingly, hopefulness was also the only emotion that correlated significantly with actual exam performance. Students who were more hopeful tended to also earn higher grades on the midterm ($r = .23$, $p < .05$). We would like to point out that the three positive emotions are rated the highest and that anxiety, which is so often the focus of research and concern is in the middle of the pack. We must consider a wider range of emotions in educational settings.

Emotion	Mean Score
Pride	3.28
Enjoyment	3.12
Boredom	3.09
Anxiety	2.73
Frustration	2.38
Anger	2.30
Shame	2.19
Disappointment	2.03

Maximum score possible = 5.00

Finally, males and females endorsed each set of emotions equally with the exception of anger around preparation for and the idea of the upcoming midterm, which was endorsed significantly more by males than females, $t(77) = -2.04$, $p < .05$.