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Unrealistic Optimism in the Pursuit of Academic Success

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Abstract
Although the ability to evaluate one’s own knowledge and performance is critical to learning, the correlation between students’ self-evaluation and actual performance measures is modest at best. In this study we examine the effect of offering extra credit for students’ accurate prediction (self-accuracy) of their performance on four exams in two semester-long classes on Personality. The courses emphasized the role of self-awareness. Despite these motivational interventions and performance feedback, there was minimal change in accuracy over the semester; a large proportion of students remained unrealistically optimistic about their performance in the face of evidence to the contrary. Moreover, inaccurately inflated confidence was related to poorer academic performance. A small minority of students improved in accuracy and exam performance over the each of the courses, offering a potentially useful source of comparison for addressing unrealistic optimism. We discuss the findings as reflecting the powerful influence of protecting self-esteem and suggest the need for realistic self-appraisal as a factor in academic success

Keywords
self-awareness, unrealistic optimism, extra credit, self-esteem

Cover Page Footnote
We would like to thank Andrew Lewine for suggesting the use of extra credit for successful prediction of exam performance.
Unrealistic Optimism in the Pursuit of Academic Success

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Although the ability to evaluate one’s own knowledge and performance is critical to learning, the correlation between students’ self-evaluation and actual performance measures is modest at best. In this study we examine the effect of offering extra credit for students’ accurate prediction (self-accuracy) of their performance on four exams in two semester-long classes on Personality. The courses emphasized the role of self-awareness. Despite these motivational interventions and performance feedback, there was minimal change in accuracy over the semester; a large proportion of students remained unrealistically optimistic about their performance in the face of evidence to the contrary. Moreover, inaccurately inflated confidence was related to poorer academic performance. A small minority of students improved in accuracy and exam performance over each of the courses, offering a potentially useful source of comparison for addressing unrealistic optimism. We discuss the findings as reflecting the powerful influence of protecting self-esteem and suggest the need for realistic self-appraisal as a factor in academic success.

INTRODUCTION

Students often express surprise at their failure to meet academic goals. This sometimes leads to “perseverating to failure” as reflected in taking and failing the same class multiple times, complaints about instructors who do not reward effort alone, demoralization, and increased likelihood of attrition. Viewed by Miller and Wrosch (2007) as the cost of an excessively applied cultural imperative (“quitters never win and winners never quit”), a cognitive perspective suggests that there is something about information processing, specifically in the ability to evaluate one’s own performance, that interferes with student success (Robertson, Lewine and Sommers, 2014).

Some argue that today’s college students, in contrast to those of past decades, have turned from the “self-examined life” to a consumer- and career-oriented approach to education that has undermined self-awareness in favor of pursuing practical knowledge (Delbanco, 2012). Dubbed “flawed self-assessment” by Dunning and colleagues (Dunning, Heath and Suls, 2004), there appear to be multiple obstacles to correctly reflecting on and evaluating one’s skills, behavior, and character. All of us are subject to confirmation bias, above average effects (the Lake Wobegon phenomenon—“…where all the women are strong, all the men are good looking, and all the children are above average…”), A Prairie Home Companion, 2016), excessive optimism, and other cognitive distortions that have practical consequences across a broad spectrum of life experiences, including education. As educators, we are naturally concerned with how such flawed self-assessment will affect student engagement and learning. It appears, as we briefly summarize below, that academic performance and accurate self-assessment are related.

Since at least 1975 (Sinkavich), studies have suggested that students who do well academically are significantly more accurate in predicting and evaluating their academic performance than those who do poorly. In contrast, poor academic performance seems to be associated with an overly optimistic self-evaluation (Cochran & Spears, 1980; Hacker; Bol, Horgan and Rakow, 2000; Shaughnnessy, 1979). While consistently identified as an obstacle to learning, this unrealistic optimism among college students is not well understood, particularly regarding the role of motivation and affect.

We propose in this study to examine the role of motivation in unrealistic optimism by providing a strong immediate reward for accurate self-awareness: extra course credit. By offering extra credit (see below), we maximize students’ immediate performance gain in addition to the benefit to be derived over multiple exams and feedback opportunities.

Extra credit is a pervasive feature of contemporary higher education, albeit one about which many educators are ambivalent (Harrison, Meister and LeFevre, 2011; Hill, Paladino and Eison, 1993; Lei, 2013; Norcross, Horrock and Strason, 1989). Reported to be used most often by better performing students and by female students, extra credit is viewed by faculty as both a means for students to deepen their level of understanding, as well as a means for improving grades. Students report that the opportunity to improve their grades is the strongest motivator for extra credit (Lei, 2013). It stands to reason, therefore, that offering extra credit for accurate self-evaluation of academic performance should encourage students to engage in the self-awareness process.

In addition to the extra credit, we maximized the exercise of academic self-evaluation by making self-awareness a focal point of each course and by assessing students’ accuracy of prediction over four exams administered during a single semester. In short, we attempted to maximize features of the courses that should have enhanced self-awareness.

METHODS

Overall Design

To examine the effect of performance self-monitoring on exam grades, we asked students to predict their exam scores immediately prior to taking each exam. We calculated their accuracy of prediction and assessed the relationship between prediction accuracy and exam performance. In order to examine the role of extra credit in accuracy, we carried out the study in two different classes, one that offered extra credit for accuracy (incentivized manipulation) and one that offered no extra credit of any sort.

Courses

The one-semester courses were a mid-level undergraduate personality course (syllabus available from the first author) emphasizing the tension between the conscious and the modern unconscious (Kihlstrom, 1987) in the formation and expression of personality. This tension was modeled experientially using in class exercises and didactically by assigned readings representing a broad range of personality theories.
Measures
Four 4-alternative forced choice exams were administered during each course. The percent of performance (P) and obtained (O) scores, we calculated an accuracy (A) score for each exam: \( A = \frac{P - O}{P + O} \). In addition, we calculated a measure of accuracy (Ac) across the four exams: \( A_c = \frac{1}{4} \sum \{ P + O \} \). We computed the correlations between predicted and obtained scores to determine predictor types and their relationship to final cumulative exam grades. Students with negative accuracy values underpredicted their exam performance; students with accuracy values overpredicted their exam grades; and those with accuracy scores of 0 predicted perfectly what they scored on the exam.

Participants
Students in two personality classes participated in predicting their exam scores. This was part of a larger study of critical thinking approved by the local IRB. This report is based on those students (from a total of 300) who consented to have their data analyzed and who completed all four exams required in the class (222 students; 63 men, 149 women, 10 students did not indicate sex).

Procedures
Prior to each exam, students were asked to submit a numerical prediction of their performance on that exam (0-20). In one class, students could receive up to 3 extra credit (EC) points on a given exam for accuracy of prediction (3 points for predicting accurately; 2 points for being within 1 point; 1 point for being within 2 points). Students in the second course did not receive extra credit of any sort. Students were told that they could see which items they missed as a way of improving their learning and predictions on subsequent exams (Hacker, Hol, Horgan, et al., 2004).

Analyses
We conducted three sets of analyses. First, we used paired comparisons of exam to examine the change in accuracy over the course. Second, we calculated the correlations between predicted and obtained scores for each exam for direct comparison with previous studies (Dunning et al., 2004). The correlations in our study ranged from .27 to .34 for exam 1, 2, 3, and 4, respectively. The one noteworthy exception is the better mean prediction accuracy of the poorest performing students when receiving extra credit (0.08) than when not (.23). This is inconsistent with the general expectation that success breeds more accurate predictions, and suggests that students who received their graded exams for further study and that students who were focused on study and achievement would benefit most from extra credit and deserve more attention in the future.

RESULTS
Accuracy over exam administrations
The accuracy values collapsed by extra credit status for the four exams were .05 (12), .06 (13), -.01 (12) and .06 (13) for exam 1, 2, 3, and 4, respectively. Mean accuracy scores by extra credit status (EC and NEC) were: Exam 1 = .04 (.10) and .06 (.14) for exam 1, 2, 3, and 4, respectively. Mean accuracy scores by extra credit status were: Exam 1 = .04 (.10) and .06 (.14); Exam 2 = .37 (.22); Exam 3 = .30 and .24; and Exam 4 = .49 and .29. Mean accuracy scores by extra credit status were: Exam 1 = .05 (.12), .06 (.13), -.002 (.12), and .06 (.13) for exam 1, 2, 3, and 4, respectively. The correlations between predicted and obtained exam scores were modest, although statistically significant (\( p > .001 \)) for each exam. The accuracy scores were consistently lower for the no extra credit condition, although the last difference between correlations was significant (\( p > .05 \)), a one-tailed test, which is a reasonable concern given the number of correlations calculated. Analysis by sex yielded no statistically significant differences.

Accuracy and Final Grade
Accuracy over exam administrations
The vast majority of student feedback about the courses was in the form of standard student ratings. There were five undecided, seven positive, six negative, and two average comments. Students gave two directly addressing the use of performance prediction.

• “I like the fact that we’re learning how to be critical thinkers, and that’s why I wouldn’t mind being underpredicted. It helps me see my own worldview and the idea of what my abilities are.”

• “I would have to say that I personally applied the SAC points to my idea of my own classes. I have to say that I have done far better in my courses all around this semester.”

• “I find the more I use this critical thinking tool the better I have become.”

• “I would change my prediction if I was not expecting one grade and getting another. This has lowered my anxiety of [sic] disappointment”.

DISCUSSION
Prediction of academic performance can become more accurate over a semester but not via use of extra credit.

At the group level, there was some improvement in the ability to predict exam performance from the first to the third exam, with a drop in accuracy for the final exam for both courses. We do not know whether the mechanism underlying this change other than the individual feedback each student generated by comparing obtained with predicted grade, perhaps as informed by having the graded exams available. It appears that the mere act of requiring self-evaluation, with no other discussion about how to predict grades and the meaning of accuracy/inaccuracy, may modestly improve prediction. This may be limited, however, as suggested by the return to a greater level of inaccuracy for exam 4. This could, of course, be a chance finding requiring further research to explore.

In our study, there were minimal differences in the accuracy of predicted exam scores, mean final grade, and distribution of accuracy scores between the class that received extra credit for accurate prediction and the class that did not. This raises the possibility that the prediction exercise is highly intrinsically driven for at least some of the students (as suggested by the spontaneous student feedback). It is possible that the extra credit conditions were not optimal for improving self-evaluation, although we note that students received their graded exams for further study and that students receiving credits were emphasized throughout the semester course. The one noteworthy exception is the better median accuracy of the poorest performing students when receiving extra credit (.08) than when not (.23). This is inconsistent with the general expectation that success breeds more accurate predictions, and suggests that students who received their graded exams for further study and that students who were focused on study and achievement would benefit most from extra credit and deserve more attention in the future.

Despite the use of extra credit and the semester-long emphasis on self-awareness, students’ accuracy regarding their own performance was modest at best, a finding consistent with reports by others. Dunning et al. (2004) in reviewing the correlation between self-reported skill/knowledge and actual performance among college students, reported an average correlation of about .21 (Hansford & Hatte, 1982). In a later, more intensive review, the correlation was around .39 (Falchikov & Boud, 1989; reported in Dunning et al., 2004). When students were not required to track their predictions, the correlations ranged from .27 to .34 suggesting a consistency in accuracy across some 30 years of research. In short, students’ ability to correctly evaluate their own knowledge and performance has remained remarkably consistent and low over time.

Persistence of optimistic predictions in the face of poor performance is a counter-statement to self-awareness.

While modest prediction accuracy can improve over time and efforts, there is a substantial range of individual differences, with most students consistently overpredicting their success. Hacker et al. (2000) found that only the higher performing students (80% or higher on exams) were accurate in their predictions, predictions that improved over three exams. In contrast, poorer performing students (78% of their sample) consistently overpredicted their performance. Similarly, Falchikov and Boud (1989) found that 68% of students do not assess their performance results, in which 71% of our students overpredicted, are consistent with these earlier reports. Why do students persist in their overly optimistic view of their academic performance in the face of repeated evidence to the contrary?

One interpretation, pointed out in the Introduction, is that students are susceptible to cultural injunctions, such as “quitters never win and winners never quit.” As argued by Kenny Rogers, however, this interpretation is limited as “you gotta know when to fold ‘em” (Miller & Wrooch, 2007). Similarly, the combination of the positive psychology movement (Seligman, Ernst, Gillham, Reivich and Alliance, 2005) and the growing emphasis among educators (Dweck, 2006) may lead students to believe that persistent confidence in their own ability to do better will make it so. We frequently hear student services personnel and advisors encourage students to believe in themselves, rely on others to do anything if they put their minds to it, and all things are possible with persistent efforts. The results from this study suggest we start a conversation about reducing potentially harmful overoptimism and increasing productive humility. Indeed, the recent success of educators in offering predictive analytics algorithms to universities suggests that this movement may already be under way (Blumenstyk, 2016).

Overprediction was clearly associated with lower grades in this study, as reported by others (see Falchikov & Boud, 1989; Hacker et al., 2000). Our findings suggest further that it may not matter whether students are susceptible to performance. Our results indicate that the performance group (Perfect accuracy = 0.084) was less optimistic than the prediction group (Perfect accuracy = 0.156), .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156) .108 (.110) .050 (.127) .036 (.123) .090 (.156).
in our study, we might ask how faculty and students understand that reflects interaction between environmental demands (learning into account individual differences among students. An important teaching goals and to explore suitable teaching strategies that take demands that could be used to carefully parse the demands of empirical research, these authors offer an integrated matrix that represents adaptation to the external world that develops through cognitive style (Kozhevnikov, Evans and Falchikov, N. & Boud, D. (1989). Student self-assessment in higher education: the contribution of Erich Fromm to a critical pedagogical strategies and be prepared to address them. With respect to the unrealistic optimists, perhaps the core issue is not cognitive, but rather affect regulation, something to be examined in future research.

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The authors would like to thank Andrew Lewine for suggesting the use of self-awareness extra credit to address the issue of motivation.

REFERENCES


