1   Abstract

2   **Background.** There is evidence that learners may adopt different kinds of achievement goal:

3   mastery approach, mastery avoidance, performance approach, and performance avoidance. In

4   higher education, this evidence has mainly come from young people who have recently gone

5   straight from secondary education to higher education. However, higher education is

6   increasingly populated by older students, and it has been theorized that the relationship

7   between goals and achievement might be very different for adult learners.

8   **Aims.** The study examined whether the relationships between achievement, drop-out rate,

9   and goal orientation observed for non-adult populations are mirrored in adult learners.

10 **Method.** The Achievement Goal Questionnaire (AGQ) was administered to adult learners

11 taking courses by distance learning.

12 **Sample.** Respondents were 195 men and 586 women between the ages of 19 and 87.

13 **Results.** The results confirmed the reliability of the 2×2 version of the AGQ for this

14 distinctive population. As in previous studies of younger students, mastery-approach goals

15 were unrelated to attainment, performance-approach goals tended to facilitate attainment, and

16 performance-avoidance goals tended to impair attainment. In addition, mastery-avoidance

17 goals tended to impair students' attainment and also increased the likelihood that they would

18 drop out of their course altogether.

19 **Conclusion.** The achievement-goal framework is as appropriate for understanding influences

20 on attainment in adult learners as it is in younger students. Adult learners may be more

21 sensitive to the deleterious effects of adopting mastery-avoidance achievement goals.

22   *Keywords:* academic attainment, achievement goals, adult learners, higher education

23

1   In the UK and worldwide, populations labelled "adult learners" are increasingly prevalent. In

2   the UK, for example, data from the Higher Education Statistics Agency (2009) show that

3   102,585 (or 22.3%) of the 459,395 first-year full-time undergraduates in 2007/08 were aged

4   21 or over. In the US, Merriam and Caffarella (1991, chap. 1) noted that institutions of higher

5   education had over the previous 50 years recruited roughly as many students who were over

6   the age of 22 at the time of their admission as they had recruited students aged between 18

7   and 22. The rise of adult learners as a significant population in higher education is ubiquitous.

8   Although a review by Richardson and King (1998) suggested that claims about the

9   specialness of adult learners might be over-stated, there are features of the population of adult

10 learners that might lead them to adopt goals that are different from those of younger learners.

11 The current study outlines what some of these features might be and examines the types of

12 goals that adult learners adopt. The study relates these goals to outcomes such as interest,

13 enjoyment, academic performance, and a measure that is particularly relevant to distance

14 learning, drop-out rate. Analyses of relationships between goals and outcomes also consider

15 the effects of gender and age.

16 *Achievement goals*

17 Dweck and Elliott (1983; Dweck, 1986) suggested that achievement motivation involved two

18 broad kinds of goal: learning goals (seeking to increase one's competence, understanding, or

19 mastery) and performance goals (seeking favourable judgements or avoiding negative

20 judgements of one's competence from others). Both kinds of goal could promote mastery-

21 oriented behaviour. However, if confidence in one's ability was low, performance goals

22 increased helpless behaviour and lowered motivation. Ames and Archer (1988; Ames, 1992)

23 offered a similar account but referred to learning goals as "mastery goals". Grant and Dweck

24 (2003) summarized the findings of subsequent research on this topic as showing that "those

1   who adopt learning goals are found to engage in deeper, more self-regulated learning

2   strategies, have higher intrinsic motivation, and perform better, particularly in the face of

3   challenges or setbacks" (p. 543).

4   Most of the original research into this topic was carried out with children in

5   compulsory education, but subsequent studies were often carried out with college students.

6   Harackiewicz and Elliot (1993) suggested that the relationship between different kinds of

7   goal and an individual's intrinsic motivation and enjoyment would be moderated by their

8   characteristic orientation towards competence or achievement. That is, individuals who had a

9   high level of achievement orientation would show enhanced intrinsic motivation in response

10   to performance goals, whereas individuals who had a low level of achievement motivation

11   would show enhanced intrinsic motivation in response to mastery goals. These predictions

12   were confirmed in two studies in which students were tested on a pinball game and their

13   intrinsic motivation was measured both behaviourally (in terms of the time spent freely

14   playing pinball) and subjectively (in terms of rated enjoyment).

15   Elliot and Harackiewicz (1996) divided performance goals according to whether they

16   were oriented towards the attainment of success or the avoidance of failure. This yielded

17   three achievement orientations: mastery goals focused on the development of competence

18   and task mastery; performance-approach goals directed towards the attainment of favourable

19   judgements of competence; and performance-avoidance goals focused on avoiding

20   unfavourable judgements of competence. When students were tested on word puzzles, Elliot

21   and Harackiewicz found that performance-avoidance goals were associated with lower

22   intrinsic motivation than the other two kinds of goal. Elliot and Sheldon (1997) found a

23   similar pattern of results when college students were asked about their academic goals and

24   activities over the course of a semester.

25   Subsequent studies found that mastery goals tend to facilitate intrinsic motivation but

1   not academic attainment, that performance-approach goals tend to facilitate academic

2   attainment but not intrinsic motivation, and that performance-avoidance goals tend to impair

3   both intrinsic motivation and academic attainment (see, e.g., Church, Elliot, & Gable, 2001;

4   Elliot & Church, 1997; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz,

5   Barron, Tauer, Carter, & Elliot, 2002; Harackiewicz, Barron, Tauer, & Elliot, 2002). Elliot,

6   McGregor, and Gable (1999) investigated the relationships between students' achievement

7   goals, their study strategies, and their performance in examinations. Their results suggested

8   that the association between students' achievement goals and academic attainment was

9   mediated by their persistence, effort, and organization in their studies.

10   Elliot and McGregor (2001) pointed out that the approach–avoidance distinction

11   could be applied to mastery goals as well as to performance goals. They developed an

12   Achievement Goal Questionnaire (AGQ) measuring mastery-approach goals ("I want to learn

13   as much as possible from this class"), mastery-avoidance goals ("I worry that I may not learn

14   all that I possibly could in this class"), performance-approach goals ("It is important for me to

15   do better than other students"), and performance-avoidance goals ("I just want to avoid doing

16   poorly in this class"). Conceptually, mastery-approach goals represent the development of

17   competence and task mastery; mastery-avoidance goals represent a desire to avoid negative

18   outcomes such as not completing a task fully; performance-approach goals represent a desire

19   to attain competence relative to others; and performance-avoidance goals represent a desire to

20   avoid demonstrating poor performance relative to others. Elliot and McGregor found that

21   students who adopted mastery-approach goals were more likely to adopt deep processing in

22   their studies, whereas students who adopted performance-avoidance goals were more likely

23   to adopt surface processing. (Neither mastery-avoidance goals nor performance-approach

24   goals were significantly related to study behaviour.) Performance-approach goals appeared to

25   facilitate attainment, performance-avoidance goals appeared to impair attainment, but neither

1   mastery-approach goals nor mastery-avoidance goals were significantly related to attainment.

2   *Achievement goals in adult learners*

3   Subsequent research has provided extensive confirmation of the achievement goal framework

4   (for reviews, see Elliot, 2005, 2008; Pintrich, 2003; Senko, Hulleman, & Harackiewicz,

5   2011). Hulleman, Schrager, Bodmann, and Harackiewicz (2010) noted that in the previous 25

6   years there had been over 1,000 studies concerned with achievement goal theory. However, a

7   major limitation of this research is that it has predominantly been carried out with samples

8   consisting of young people who had recently gone straight from secondary education to

9   higher education. The paucity of research with older participants is curious given the

10   prevalence of adult learners in higher education that was noted earlier. The generalizability of

11   findings from goal research demands a study of older students to foster confidence that the

12   consistency of research findings is indeed applicable to the broader population of students

13   attending higher education.

14   In the few studies been carried out using adult populations to examine achievement

15   goals, key aspects of achievement goals have been omitted. For example, Eppler and Harju

16   (1997) compared traditional (younger) and non-traditional (older) students in their adoption

17   of mastery and performance goals. They found that non-traditional students obtained higher

18   scores than traditional students on mastery goals, but the two groups did not differ in their

19   adoption of performance goals. Unfortunately, the inventory employed in this study did not

20   measure mastery-avoidance or performance-avoidance goals, and the participants included

21   only 45 adult learners. Sachs (2001) found that mastery goals seemed to facilitate intrinsic

22   motivation but not academic attainment among part-time students aged between 25 and 40 at

23   the University of Hong Kong. However, Sachs argued that performance goals were often

24   irrelevant for adult learners, and so he did not measure the adoption of performance goals in

1   his sample. Studies by Ng (2006, 2008) examined the relationship between goals and a range

2   of outcomes among adult learners in Hong Kong. However, neither of Ng's studies measured

3   mastery-avoidance or performance-avoidance goals.

4   ***Some predictions***

5   The paucity of research using avoidance constructs with adult learner populations is curious,

6   especially since several writers have suggested that the experiences of adult learners in higher

7   education are inherently problematic (e.g., Lunneborg, 1987, 1988; Schlossberg, Lynch, &

8   Chickering, 1989; Ware et al., 1993). These authors have focused on adult learners' supposed

9   lack of self-confidence and, in particular, a need for initial and ongoing academic support. If

10 this were the case, one might expect this poor self-confidence to lead adult learners to adopt

11 performance-avoidance goals. Several theorists have posited a link between low confidence

12 and the adoption of performance-avoidance goals (Bong, 2005; Brophy, 2005; Kaplan &

13 Maehr, 2007; Midgley, Kaplan, & Middleton, 2001).

14   Nevertheless, others have suggested that adult learners are more likely to be studying

15 for intrinsic reasons rather than for instrumental reasons (Beinart & Smith, 1998, p. 176;

16 Taylor, Morgan, & Gibbs, 1981) and that as a consequence they are more likely to focus on

17 understanding their course materials (Harper & Kember, 1986; Richardson & King, 1998).

18 On that argument, one might expect adult learners to be more likely than younger learners to

19 adopt mastery-approach goals, which is indeed what Eppler and Harju (1997) found.

20   With regard to performance-approach goals, we have already noted that Sachs (2001)

21 argued that performance goals were often irrelevant for adult learners. Intuitively, this claim

22 seems logical because the idea that adult learners would be seeking to demonstrate their

23 ability to others is at odds with the apparent mastery-oriented nature of the adult population.

24 However, we have also observed that Eppler and Harju (1997) found no difference between

1   traditional and non-traditional students in their adoption of performance goals. In the current

2   study, it is possible to assess the prevalence of all forms of approach and avoidance goals.

3   As well as examining the types of goals that students adopt, there are also potential

4   differences in the patterns of relationships between goals and outcomes. There are competing

5   arguments for a positive relationship and a negative relationship between mastery-approach

6   goals and achievement. The positive argument follows the logic that the students in the

7   present study were taking courses by distance learning, and so the lack of additional sources

8   of peer distraction might facilitate the maintenance of a tight focus on their studies, resulting

9   in a positive relationship between mastery-approach goals and achievement.

10   By the same token, however, adult students with mastery-approach goals have to

11   juggle busy personal and professional lives and might have less time to dedicate to their

12   studies. In addition, the students in this sample would have had less access to informal study

13   groups and academic conversations with their peers. Both considerations suggest that the

14   relationship between mastery-approach goals and achievement would be null or even

15   negative.

16   With regards to interest and enjoyment, despite competing claims about the

17   relationship between mastery-approach and achievement, it is unlikely that the generally

18   positive relationship between mastery-approach goals and students' interest or enjoyment

19   found for non-adult-learner populations would be different for the population examined in

20   this study.

21   With regard to performance-approach goals and performance-avoidance goals, we did

22   not expect major differences in the observed relationships between goals and outcomes. We

23   expected negative relationships between the adoption of performance-avoidance goals and

24   achievement, interest, and enjoyment, and we expected students with performance-avoidance

25   goals to be more likely to drop out of their course. In contrast, we expected a positive

1 relationship between the adoption of performance-approach goals and achievement and null

2 relationships with interest and enjoyment.

3 *Adult learners and mastery-avoidance goals*

4 The mastery-avoidance construct in the 2×2 framework is a relatively new addition to the

5 goal family. What is striking about this construct is its relevance for adult learners. For

6 example, a goal "to avoid learning less than it is possible to learn" (to paraphrase an item in

7 the present study) seems particularly appropriate, given adult learners' desire to learn but

8 their supposed worry about not learning enough. On the other hand, some authors have

9 suggested that mastery-avoidance goals are too rare to be considered an important construct.

10 In the case of students in an athletic setting, Sideridis and Mouratidis (2008) found that fewer

11 than 8% were primarily focused on mastery avoidance. Contrariwise, Van Yperen, Elliot, and

12 Anseel (2009) reported the prevalence of mastery-avoidance goals to be as high as 33% in

13 academic settings and nearly 49% in work-based settings. Debates about the validity of the

14 items in question have led to recent revisions of the construct in a revised version of the AGQ

15 (Elliot & Murayama, 2008) and in a sporting context by Ciani and Sheldon (2010). Clearly,

16 the general prevalence of mastery-avoidance goals needs to be assessed, and, in the absence

17 of previous research on the relationship between mastery-avoidance goals and outcomes for

18 adult learners, the current study permits an investigation of this construct.

19   In terms of the relationship between mastery-avoidance goals and outcomes, much of

20 the evidence has yielded null effects (e.g., Cury, Elliot, Da Fonseca, & Moller, 2006; Elliot &

21 McGregor, 2001; Finney, Pieper, & Barron, 2004; Malka & Covington, 2005). Nevertheless,

22 Van Yperen et al. (2009) found that experimentally induced mastery-avoidance orientations

23 reduced the level of performance from Time 1 to Time 2 relative to other goals. In short, and

24 in keeping with the findings for other avoidance constructs, we expected a negative

1   relationship between mastery-avoidance goals and the outcomes measures in this study.

2   *Gender, age, and drop-out rate*

3   Most studies on achievement goals have included both male and female participants. Even

4   when significant differences have been found (e.g., Barron & Harackiewicz, 2001; Elliot &

5   Church, 1997; Elliot & McGregor, 2001, Study 1; Elliot & Thrash, 2002, Studies 4 & 5),

6   however, researchers have chosen not to comment on these findings, presumably because

7   gender was an incidental variable rather than the focus of inquiry. Hyde and Durik (2005)

8   reviewed previous studies that had examined gender differences in achievement goals. They

9   specifically highlighted the lack of reporting of results and noted that "gender was rarely the

10   focus of these studies" (p. 385). When significant differences were found, girls and women

11   had generally reported higher levels of mastery achievement than boys and men in domains

12   such as language, arts, and psychology but not in science or mathematics. Nevertheless, the

13   general picture is that gender does not play an important role in goal adoption. Accordingly,

14   for adult learners we had no expectation that there would be gender differences either in the

15   goals adopted or in the relationship between goals and outcomes.

16   An interesting variable in the present research was that of age. To study achievement

17   goals in compulsory education, researchers have generally used the Patterns of Adaptive

18   Learning Styles (Midgley et al., 2000). In contrast, researchers who have used the AGQ or its

19   various derivatives (Elliot & Church, 1997; Elliot & McGregor, 2001; Elliot & Murayama,

20   2008; Elliot, Murayama, & Pekrun, 2011) have tended to study undergraduate students. The

21   differences in instrumentation and their implications for theory development were outlined by

22   Hulleman et al. (2010), but interestingly the issue of age as a variable has not been addressed.

23   In a study of adults over the age of 50, Waller (2006) suggested that "mature students are a

24   diverse and heterogeneous group, with the 'reality' of their experience(s) being too complex,

1   too individually situated, for meaningful representation otherwise" (p. 120). It follows that

2   treating adult learners as a single population would be problematic. In the present study, we

3   classified respondents into five age bands: under 30, 30–39, 40–49, 50–59, and 60 and over.

4   We could therefore examine the role of age as a predictor variable, but given the absence of

5   previous evidence we did not put forward specific hypotheses in advance.

6   Measures such as interest, enjoyment, and academic achievement are fairly standard

7   in goal research, especially given the counterintuitive finding that mastery-approach goals

8   often do not predict achievement whereas performance-approach goals typically do (see

9   Senko et al., 2011). One purpose of our study was to examine whether such relationships

10   were true in the case of adult learners and in particular in the case of distance learners. A key

11   feature of distance education, however, is the relatively high drop-out rate. For instance, in

12   the case of the students involved in the present study, the drop-out rate is around 30% at the

13   course level and markedly higher at the programme level. Previous research on achievement

14   goals has not examined this measure because the drop-out rates in compulsory education and

15   in campus-based universities are fairly low (around 20% at the programme level in the UK).

16   Persistence has been used as an operational indicator of intrinsic motivation since the

17   formal introduction of this concept (for reviews, see Cameron & Pierce, 1994; Deci & Ryan,

18   1985), and so a lack of intrinsic motivation should be a good predictor of drop-out rate. As

19   noted earlier, mastery-approach goals predict intrinsic motivation, and so students who hold

20   such goals would not be expected to drop out of their course. Performance-avoidance goals

21   tend to be negatively related to intrinsic motivation, and hence students who hold these goals

22   might be at greater risk of dropping out. Performance-approach goals are usually unrelated to

23   intrinsic motivation, and so our predictions here are uncertain. On the one hand, students who

24   aim to advertise their competence might be more likely to stay on their course so they can

25   continue to demonstrate that ability. On the other hand, in distance education there are only

1   limited opportunities to demonstrate one's competence to others, and so students who adopt

2   performance-approach goals might see little reason to continue with their course.

3   Mastery-avoidance goals have been linked to low self-efficacy and to disengagement

4   (see Hulleman et al., 2010). Adult learners who hold such goals may worry about whether

5   they can achieve the level of mastery they have in mind. If they fall behind or fail to achieve

6   what is expected of them (perhaps because of time limitations or competing commitments),

7   they may give up altogether. On this basis, one would expect mastery-avoidance goals to be

8   associated with an increased drop-out rate.

9   *Aims of this research*

10   The present study was carried out to evaluate Elliot and McGregor's (2001) framework in

11   adult learners using a large sample of students who were taking courses by distance learning.

12   An extensive review by Richardson (2000) concluded that distance learners were similar in

13   their motives, study behaviour and learning outcomes to older students taking programmes in

14   campus-based institutions. However, the interactions among distance learners are markedly

15   reduced in comparison with face-to-face learners (Keegan, 1990; Moore, 1980), and so they

16   have fewer opportunities to demonstrate their abilities to other students. It follows that they

17   should be less likely to adopt performance-approach goals than are campus-based students.

18   Another important difference is that previous research on achievement goals in campus-based

19   programmes has tended to focus on students who have satisfactorily completed their courses,

20   whereas in distance education students exhibit significant levels of drop-out.

21   Our main interests were therefore as follows. First, we aimed to examine whether

22   adults would adopt mastery-approach or mastery-avoidance goals. Second, we also aimed to

23   assess whether adults' AGQ scores predicted their attainment in a similar way to that found

24   in previous studies with younger learners (see Hulleman et al., 2010, for a meta-analytic

1   review). In particular, because mastery avoidance had not been examined in this population,

2   it was anticipated that some of the relationships between mastery-avoidance goals and

3   outcomes such as achievement and persistence might be negative rather than null. Third,

4   because our sample of students was not only older but also more heterogeneous in age than

5   the samples used in previous studies, there was an opportunity to consider whether the

6   adoption of different achievement goals varied across the adult life span. Fourth, the sample

7   also provided an opportunity to examine the effects of gender. Finally, the study examined

8   whether achievement goals predicted variations in drop-out rate in distance education.

9   **Method**

10 *Context*

11 The Open University was established in 1969 to provide degree programmes by distance

12 education across the UK. It accepts all applicants over the normal minimum age of 16

13 without imposing any formal entrance requirements, subject only to limitations of numbers

14 on specific courses. At the time of writing, the University has around 150,000 students taking

15 undergraduate courses and more than 30,000 students taking postgraduate courses. Students

16 vary in age from their teens to their 90s, and their average age is around 40.

17   Initially, most of the University's courses were delivered by correspondence

18 materials, combined with television and radio broadcasts, video and audio recordings, tutorial

19 support offered at a local level, and (in some cases) week-long residential schools. In recent

20 years, the University has made increasing use of computer-based support, most especially

21 CD-ROMs, dedicated websites, and computer-mediated conferencing. Nowadays, many

22 students are recruited from other European countries, and on some courses they are recruited

23 from around the world.

24   The majority of the University's courses are worth either 30 or 60 credit points, on the

1   basis that full-time study would consist of courses worth 120 credit points in any calendar

2   year. Students are permitted to register for two or more courses up to a maximum load of 120

3   credit points, but the majority register for one course at a time. Courses contributing to the

4   University's undergraduate programme are categorized as introductory, intermediate, or

5   honours, and students qualify for a Bachelor's degree when they have gained the appropriate

6   number of credit points at either intermediate or honours level.

7   *Sample*

8   Stratified samples were drawn from students about to embark on three intermediate-level

9   courses in October 2005 who were available to be surveyed under the University's

10 regulations (which among other things precluded any student being asked to take part in more

11 than two surveys in a given calendar year). The courses were:

12 • A207 From Enlightenment to Romanticism c. 1780–1830

13 • A210 Approaching Literature

14 • U210 The English Language: Past, Present and Future

15 Each course was worth 60 credit points (that is, equivalent to half of full-time study). Each

16 was assessed by means of a series of written assignments (marked by each student's tutor)

17 and a final unseen examination (taken at a regional centre and marked by independent

18 examiners).

19   On each course, the sampling strategy was to draw at random 250 students from those

20 who had previously achieved fewer than 120 credit points, 150 students from those who had

21 previously achieved 120 credit points but fewer than 240 credit points, and 50 students from

1   those who had previously achieved 240 credit points but fewer than 360 credit points. (The

2   varying sample sizes roughly reflect the relevant total numbers of students.) Because of a

3   short-fall in the number of students to be surveyed in each course in each stratum, the

4   questionnaire was administered to just 1,140 students in total rather than the 1,350 students

5   originally planned. Of the 1,140 students, 289 were male and 851 were female.

6   *Instrument*

7   The 12 items in the AGQ are shown in Table 1 below. In Elliot and McGregor's (2001)

8   original study, most of the items referred to "this class", which implies face-to-face teaching.

9   For this study, the items were reworded to refer to "this course" or "my courses" (so that they

10   were neutral between face-to-face and distance education). Nevertheless, the students

11   responded on the original 7-point Likert-type scale from "not at all true of me" (coded 1) to

12   "very true of me" (coded 7).

13   It was only possible to distribute the questionnaire at one time point, namely, at the

14   start of the course. This meant that it was only possible to assess interest and enjoyment as

15   pre-course expectation measures. Following Lieberman and Remedios (2007), the items used

16   were "On the whole, I expect this course to be very interesting" and "On the whole, I expect

17   this course to be very enjoyable". Participants responded on the same 7-point Likert-type

18   scale. The measures therefore captured students' pre-study expectations, not their actual

19   interest and enjoyment in the course once they had taken it. The aim here was to assess the

20   relationship between pre-course goal orientation and anticipated interest and enjoyment.

21   *Procedure*

22   The questionnaire was distributed in a postal survey that was mailed to the participants at the

23   beginning of September 2005. A reminder was mailed to those who had not replied 2 weeks

1   later. The survey was closed 6 weeks after the original mailing when the courses had just

2   started so that the students' responses would not be influenced by their actual experience of

3   the courses.

4   **Results**

5   *Respondents*

6   Of the 1,140 students surveyed, 781 (or 68.5%) had returned the questionnaire by the close of

7   the survey. This would be considered a good response for a postal survey (Babbie, 1990, p.

8   182; Kidder, 1981, pp. 150–151). Indeed, 17 other students returned their questionnaires after

9   the cut-off date, and therefore the final response rate was exactly 70%. However, the latter

10 students were not included in the data analysis. In previous studies of achievement goals in

11 younger, campus-based students, response rates have typically not been reported.

12   The respondents consisted of 195 men and 586 women who varied in age from 19 to

13 87 years. The mean age of the respondents was significantly higher (41.42 years) than that of

14 the nonrespondents (35.98 years), $F(1, 1138) = 47.80$, $p < .001$, partial $\eta^2 = .04$. However, the

15 response rate was similar for men (67.5%) and for women (68.9%), $\chi^2(1, N = 1140) = 0.19$, p

16 $= .66$, and similar across the students taking the three courses, $\chi^2(2, N = 1140) = 3.46$, $p = .18$.

17 *Principal components analysis*

18 Of the 781 students who returned the questionnaire by the cut-off date, 41 had failed to give a

19 response to one or more of the 12 items in the AGQ, and so the subsequent analysis was

20 based on the 740 students who had provided complete data on those items. They consisted of

21 190 men and 550 women whose ages varied from 19 to 85 with a mean of 41.18 years. The

22 data analysis followed that adopted by Elliot and McGregor (2001) in their original Study 1.

23   A principal components analysis identified four components with eigenvalues greater

1   than 1 that explained 73.88% of the total variance. The idea that four components should be

2   extracted was confirmed by the results of a parallel analysis of 1,000 random correlation

3   matrices using the program produced by O'Connor (2000). Accordingly, four principal

4   components were extracted and then submitted to varimax rotation. Table 1 shows the matrix

5   of pattern/structure coefficients sorted within each component. The extracted components

6   correspond exactly to the performance approach, mastery avoidance, mastery approach, and

7   performance avoidance scales.

8   (Insert Table 1 about here)

9   *Psychometric properties of the questionnaire*

10   The respondents were assigned scores on each of the four scales by taking the means of their

11   responses to the relevant items. Descriptive statistics for the students' scale scores are

12   presented in Table 2. In general, the students obtained very high scores on mastery approach

13   and high scores on mastery avoidance and performance avoidance; however, they obtained

14   low scores on performance approach, both in absolute terms and in comparison with the

15   younger learners studied by Elliot and McGregor (2001). A multivariate analysis of variance

16   found no significant difference among the scale scores obtained by the students who were

17   taking the three different courses, $F(8, 1468) = 1.34$, $p = .22$, partial $\eta^2 = .01$.

18   (Insert Table 2 about here)

19   The internal consistency of each of the four scale scores as measured by Cronbach's

20   (1951) coefficient alpha would be regarded as satisfactory on conventional research-based

21   criteria (Nunnally, 1978, pp. 245–246; Robinson, Shaver, & Wrightsman, 1991). Despite the

22   fact that orthogonal rotation was used, Table 2 shows that the correlation coefficients among

23   the four scale scores were all positive and statistically significant. This is consistent with the

24   widely accepted assumption that students may pursue different kinds of achievement goal at

1   the same time (Barron & Harackiewicz, 2001; Elliot & McGregor, 2001; Pintrich, 2000).

2   In response to the statements "On the whole, I expect this course to be very

3   interesting" and "On the whole, I expect this course to be very enjoyable", the 740 students

4   produced mean ratings of 6.43 ($SD = 0.81$) and 6.19 ($SD = 0.94$), respectively, on a scale

5   from 1 to 7. In short, the majority of students expected their course to be both interesting and

6   enjoyable. These ratings are even higher than those obtained by Lieberman and Remedios

7   (2007) from a large sample of younger students at a campus-based university. Multiple

8   regression analyses were carried out to determine whether the students' scale scores predicted

9   these ratings. The standardized regression coefficients are shown in Table 3. Students who

10   obtained higher scores on mastery approach expected their course to be more interesting and

11   enjoyable. Students who obtained higher scores on mastery avoidance expected their course

12   to be less enjoyable.

13   (Insert Table 3 about here)

14   *Effects of age and gender*

15   The students were classified into the five age bands shown in Table 4, which shows the mean

16   scale scores related to age and gender. A multivariate analysis of variance showed that there

17   was a significant gender difference in the students' scale scores, $F(4, 727) = 5.16$, $p < .001$,

18   partial $\eta^2 = .03$. Univariate analyses found that women obtained significantly higher scores

19   than men on both mastery avoidance, $F(1, 730) = 14.31$, $p < .001$, partial $\eta^2 = .02$, and

20   performance avoidance, $F(1, 730) = 11.31$, $p = .001$, partial $\eta^2 = .02$. However, there was no

21   significant gender difference on mastery approach, $F(1, 730) = 1.98$, $p = 0.16$, partial $\eta^2 =$

22   .00, or performance approach, $F(1, 730) = 0.35$, $p = .55$, partial $\eta^2 = .00$. Moreover, there was

23   no significant variation in the students' scale scores across the five age bands, $F(16, 2222) =$

1   1.09, $p = .36$, partial $\eta^2 = .01$, and no significant interaction between the effects of age and

2   gender, $F(16, 2222) = 0.85$, $p = .62$, partial $\eta^2 = .00$.

3   (Insert Table 4 about here)

4   Table 4 also shows the mean course ratings related to age and gender. A multivariate

5   analysis of variance showed that there was significant variation across the five age bands,

6    $F(12, 1916) = 2.14$, $p = .01$, partial $\eta^2 = .01$. Univariate analyses showed that older students

7   expected their course to be more enjoyable than did younger students, $F(4, 730) = 2.45$, $p =$

8    $.04$, partial $\eta^2 = .01$. However, the variation in how interesting students in different age bands

9   expected their course to be was not significant, $F(4, 730) = 1.43$, $p = .22$, partial $\eta^2 = .01$.

10   There was also a significant gender difference in the students' course ratings, $F(2,$

11    $729) = 5.29$, $p = .005$, partial $\eta^2 = .01$. Women expected their course to be more interesting

12   than did men, $F(1, 730) = 10.45$, $p = .001$, partial $\eta^2 = .01$, and they expected their course to

13   be more enjoyable than did men, $F(1, 730) = 4.54$, $p = .03$, partial $\eta^2 = .01$. However, there

14   was no significant interaction between the effects of age and gender on the students' course

15   ratings, $F(12, 1916) = 1.14$, $p = .32$, partial $\eta^2 = .01$.

16   *Academic outcomes*

17   A year later, results had been formally recorded for 1,123 of the 1,140 student surveyed: 785

18   had completed their course, 306 had withdrawn at some point during the course, and 32 had

19   deferred their assessment until a subsequent presentation of the course. (The overall

20   completion rate of 69.9% is typical for undergraduate courses at the Open University.) The

21   completion rate was similar across the three courses, $\chi^2(2, N = 1123) = 1.90$, $p = .39$, similar

22   in men and women, $\chi^2(1, N = 1123) = 3.65$, $p = .06$, and similar across the five age bands,

23    $\chi^2(4, N = 1123) = 1.98$, $p = .74$. Nevertheless, it was significantly higher in the students who

1   had responded to the survey (74.5%) than in those who had not (59.7%), $\chi^2(1, N = 1123) =$

2   25.07, $p < .001$.

3   Table 5 shows the scale scores obtained by the 547 survey respondents who had been

4   recorded as having completed their course and the 189 respondents who had been recorded as

5   having withdrawn from their course. Hierarchical logistic regression analysis was employed

6   to relate course completion to the scale scores: the first stage evaluated age and gender as

7   predictor variables, and the second stage evaluated the scale scores as predictor variables

8   while statistically controlling for any possible effects of age and gender. The results are

9   shown in Table 6. Completion of the relevant course was significantly predicted only by the

10   scores on mastery avoidance; the odds ratio was 0.86, implying that an increase of one point

11   in the score on this scale reduced the odds of completing the course by 14%.

12   (Insert Tables 5 and 6 about here)

13   Of the 785 students who had completed their course, 625 (or 79.6%) had passed, but

14   160 had failed. The pass rate was similar across the three courses, $\chi^2(2, N = 785) = 1.34$, $p =$

15   .51. Nevertheless, it was significantly higher in women (82.2%) than in men (72.6%), $\chi^2(1, N$

16   $= 785) = 8.71$, $p = .003$, lower in younger students than in older students, $\chi^2(4, N = 785) =$

17   9.74, $p = .04$, and higher in the students who had responded to the survey (81.3%) than in

18   those who had not (74.9%), $\chi^2(1, N = 785) = 3.89$, $p = .05$. Of the 547 survey respondents

19   who had completed their course, 444 had passed, but 103 had failed. Hierarchical logistic

20   regression analysis found that none of the four scale scores significantly predicted passing

21   versus failing in students who had completed the relevant course when the effects of age and

22   gender had been statistically controlled ($p > .33$ in each case).

23   Students were marked on their performance in their coursework and the examination,

24   in both cases using a percentage scale with a pass mark of 40%. These were averaged to yield

25   an overall mark, and marks were recorded for the 625 students who had passed the relevant

1   course. The mean coursework mark was 72.23 (SD = 9.73), the mean examination mark was

2   65.21 (SD = 13.21), and the mean overall mark was 68.72 (SD = 10.22). An analysis of

3   variance showed that students who had taken U210 achieved significantly lower coursework

4   marks (M = 70.55) than students who had taken A207 (M = 72.86) or A210 (M = 73.15), F(2,

5   622) = 4.49, p = .01, partial η^2 = .01. However, there was no significant variation across the

6   three courses in the students' examination marks, F(2, 622) = 2.15, p = .18, partial η^2 = .01.

7   The men and the women obtained similar coursework marks, F(1, 615) = 0.17, p =

8   .68, partial η^2 = .00, and similar examination marks, F(1, 615) = 0.05, p = .82, partial η^2 =

9   .00. Students aged under 30 achieved significantly lower coursework marks than older

10   students, F(4, 615) = 2.57, p = .04, partial η^2 = .02, but there was no significant variation in

11   examination marks across the five age bands, F(4, 615) = 1.21, p = .31, partial η^2 = .01. The

12   students who had responded to the survey achieved significantly higher coursework marks (M

13   = 72.78) than the students who had not (M = 70.57), F(1, 623) = 6.07, p = .01, partial η^2 =

14   .01, but there was no significant difference between the two groups in terms of their

15   examination marks, F(1, 623) = .01, p = .94, partial η^2 = .00.

16   Analyses of covariance were employed to relate the marks to the scale scores in the

17   444 survey respondents who had passed the relevant course. The scale scores were used as

18   covariates while statistically controlling for the independent variables of age and gender. The

19   respondents' scale scores predicted their coursework marks, F(4, 430) = 6.57, p < .001,

20   partial η^2 = .06, their examination marks, F(4, 430) = 7.95, p < .001, partial η^2 = .07, and

21   their overall marks, F(4, 430) = 9.30, p < .001, partial η^2 = .08. The standardized regression

22   coefficients are shown in Table 7. There was no significant relationship between the students'

23   scores on mastery approach and their marks. Students who obtained higher scores on mastery

24   avoidance achieved significantly lower marks; students who obtained higher scores on

1   performance approach achieved significantly higher marks; and students who obtained higher

2   scores on performance avoidance achieved significantly lower marks. Similar patterns of

3   results were obtained for the coursework marks, the examination marks, and the overall

4   marks.

5   (Insert Table 7 about here)

6   **Discussion**

7   Given the prevalence of adult learners in higher education, it is curious that previous research

8   into achievement goals has focused almost exclusively upon young people who have recently

9   gone straight from secondary education to higher education. The key feature of the present

10   study was that it was concerned with an academic population that has rarely been subjected to

11   systematic scrutiny. Moreover, as we explained in the introduction, one might expect adult

12   learners to demonstrate different patterns of relationships between achievement goals and

13   learning outcomes. The present study involved a postal survey of adult learners about to

14   embark on distance-learning courses with the UK Open University. The size of the sample

15   and the high response rate ensure the robustness of the findings, which provide interesting

16   and unique comparisons with those of previous investigations.

17   The participants were asked to complete Elliot and McGregor's (2001) AGQ with

18   minor changes of wording to ensure that it was appropriate for a distance-learning context. A

19   principal components analysis identified the four original scales of the AGQ, thus confirming

20   its construct validity in this distinctive population. The four scales also showed satisfactory

21   levels of internal consistency according to Cronbach's (1951) coefficient alpha. In short, the

22   AGQ appears to be as psychometrically sound in British adult learners as it is in traditional-

23   age US college students. Recent evidence obtained by Sun and Hernandez (2010) has shown

24   factor invariance for the AGQ across Dutch, Chinese, and American students, and our data

1   add to that corpus of evidence (see also Campbell, Barry, Joe, & Finney, 2008; Murayama,

2   Zou, & Nesbit, 2009).

3   ***The goals that adult learners adopt***

4   One of the aims of this research was to assess the types of goal that adult learners adopt in

5   comparison with younger learners. Our study followed the same statistical protocols as those

6   in Elliot and McGregor's (2001) study with traditional-age undergraduate students, and so it

7   is legitimate to compare the mean scale scores. These were relatively similar except in the

8   case of Performance Approach. Reporting Elliot and McGregor's results first, the mean scale

9   scores were: mastery approach, 5.52 versus 5.96; mastery avoidance, 3.89 versus 4.19;

10   performance approach, 4.82 versus 2.83; and performance avoidance, 4.49 versus 4.38.

11   In terms of our predictions, the results support the position that adult learners are just

12   as likely as younger students to adopt mastery-approach and performance-avoidance goals.

13   Whereas Eppler and Harju (1997) found no difference between traditional and non-traditional

14   students in their adoption of performance goals, however, our students were much less likely

15   than Elliot and McGregor's (2001) participants to exhibit performance-approach goals. This

16   is more in line with Sachs' (2001) suggestion that performance goals are often irrelevant for

17   adult learners. On the face of it, then, performance-approach goals may not be as important

18   for adult learners as they are for younger learners.

19   Nevertheless, a key difference between our study and that of Eppler and Harju (1997)

20   is that our participants were studying by distance learning. As we noted in the introduction,

21   their opportunities to demonstrate their abilities to others in the classroom or other peer-

22   relevant arenas would be markedly reduced in comparison with the non-traditional campus-

23   based learners investigated by Eppler and Harju. This in turn would make it less likely that

24   our participants would adopt performance-approach goals. It would be worth undertaking

1 further research to see whether and how the mode of course delivery (face-to-face versus

2 distance learning) affects the extent to which students adopt performance-approach goals.

3   Some researchers have questioned whether mastery-avoidance goals are relevant to

4 students in higher education (Sideridis & Mouratidis, 2008). However, Elliot and McGregor's

5 (2001) results indicate that they are, and the mean score obtained by our own students on

6 mastery avoidance was if anything higher than that obtained by Elliot and McGregor's

7 sample. Mastery-avoidance goals appear to be important for traditional-age students in both

8 academic and work-based settings (Van Yperen et al., 2009), and the present findings imply

9 that they are at least as relevant for adult learners.

10 ***Goals and outcomes***

11 We now turn to the different question of how the adoption of mastery-approach goals,

12 mastery-avoidance goals, performance-approach goals and performance-avoidance goals is

13 related to different academic outcomes. There were four main outcome measures in this

14 study: attainment, expected interest, expected enjoyment and course completion.

15   In line with the findings of previous research (see Senko et al., 2011, for a review), we

16 predicted earlier that adopting performance-approach goals would be positively related to

17 attainment, but that adopting performance-avoidance goals would be negatively related to

18 attainment. These predictions were confirmed: performance-approach goals were positively

19 related to students' coursework and examination marks, whereas performance-avoidance

20 goals were negatively related to their coursework and examination marks (see Table 7). We

21 also predicted that adopting performance-approach goals would be unrelated to interest and

22 enjoyment, whereas adopting performance-avoidance goals would be negatively related to

23 interest and enjoyment. In fact, neither performance-approach nor performance-avoidance

24 goals were significantly related to either students' interest or their enjoyment (see Table 3).

1   In the introduction, we put forward arguments for expecting the relationship between

2   mastery-approach goals and attainment to be either positive or negative. In fact, again in line

3   with the findings of previous research, the adoption of mastery-approach goals was unrelated

4   to the students' coursework and examination marks (see Table 7) but was positively related to

5   both their interest and their enjoyment (see Table 3). Broadly speaking, these findings are

6   further evidence of the robustness of the relationships between goals and outcomes, at least in

7   the case of mastery approach, performance approach and performance avoidance.

8   In the case of mastery-avoidance goals, we predicted that there would be a negative

9   relationship with attainment, interest and enjoyment. Mastery-avoidance goals were indeed

10   negatively related to students' coursework and examination marks (see Table 7), and they

11   were negatively related to their expected enjoyment of their course. The relationship with

12   their expected interest was also negative, but in this case the relevant regression coefficient

13   was small and nonsignificant (see Table 3). Even so, these findings in general indicate that

14   adopting mastery-avoidance goals has negative consequences for adult learners.

15   This is true especially with regard to the outcome of course completion (see Table 6).

16   Neither mastery-approach goals nor performance-approach goals predicted the likelihood of

17   successful course completion. We had predicted that the adoption of performance-avoidance

18   goals would be increase the likelihood of students' dropping out of their course, but this was

19   not confirmed. Both our own findings and those of previous research (see Senko et al., 2011)

20   show that performance-avoidance goals are associated with reduced interest, enjoyment and

21   attainment, but these negative consequences do not include the reduced likelihood of course

22   completion. Indeed, mastery avoidance was the only significant predictor of drop-out.

23   The broad pattern of relationships between achievement goals and outcomes is

24   consistent with Elliot and McGregor's (2001) theoretical framework. The adaptiveness of

25   performance-approach goals that some researchers seem to find so counter-intuitive (e.g.,

1   Brophy, 2005) was once again supported in this study. Performance-approach goals do not

2   appear to be problematic for adult learners. Nevertheless, a key finding from this study was

3   both the prevalence and the impact of mastery-avoidance goals for adult learners. Naturally,

4   more research is needed to replicate and extend our findings, but unequivocally in this study

5   mastery-avoidance goals are both a feature and a concern for this student population.

6   ***Gender and age***

7   Gender was not a key variable in this study, but, because the population of adult learners has

8   been relatively neglected, it is of interest to compare the findings of the current research with

9   those of other studies in which data on gender and goal adoption have been reported. For

10   example, in three different studies, Elliot and McGregor (2001) found no consistent gender

11   differences. However, in the present study women were more likely than men to adopt both

12   mastery-avoidance goals and performance-avoidance goals (see Table 4). The women's

13   apparent concern with poor learning (mastery avoidance) and poor attainment (performance

14   avoidance) may reflect the fact that many had to reconcile the demands of their academic

15   studies with domestic and occupational commitments. In previous research, this has been

16   suggested as one factor that leads women taking distance-learning courses to be more likely

17   than men to adopt a surface approach to learning (Richardson, Morgan, & Woodley, 1999).

18   Even so, the women in our sample expected to their courses to be both more interesting and

19   more enjoyable, and they were actually more likely to pass their courses than were the men.

20   Although our participants varied in age from 19 to 85 years, most of the effects of age

21   were nonsignificant. There was no significant variation either in the students' scale scores or

22   in their ratings of expected interest across the five age bands, although there was a significant

23   trend for older students to expect their course to be more enjoyable than did younger students

24   (see Table 4). Older students were more likely to pass their course than the younger students,

1 and they also tended to obtain higher coursework marks. However, there was no significant

2 variation across the five age bands in either the completion rate or their examination marks.

3 More fundamentally, the values of partial η^2 for the effects of gender and age varied

4 between .00 and .02. In terms of the benchmarks that were proposed by Cohen (1969, pp.

5 278–280), which have been widely adopted in educational and psychological research, they

6 would all be regarded as small effects of little theoretical or practical importance. Within the

7 population of adult learners, therefore, gender and age are not important predictors either of

8 the adoption of different achievement goals or of academic attainment. In contrast, the values

9 of partial η^2 for the regression of achievement goals on students' marks would be regarded as

10 medium effects on Cohen's criteria and hence of both theoretical and practical importance.

11 *Limitations and suggestions for future research*

12 The adult learners in the present study were all taking courses by distance learning, and we

13 have already raised the question whether similar results would be obtained in adult learners

14 who were studying in campus-based institutions, as in the study by Eppler and Harju (1997).

15 Ideally, one would like to compare school-leavers and adult learners taking courses both on

16 campus and by distance learning in order to separate the effects of age and mode of delivery.

17 For example, we suggested earlier that students taking courses by distance learning have less

18 opportunity to compare themselves with each other than campus-based students; this would

19 predict that scores on performance approach and performance avoidance would be related to

20 mode of course delivery rather than age. A practical problem is that it is rare to find all four

21 types of student in a single higher education institution, and so such a study would confound

22 differences in age and mode of delivery with variations in institutional characteristics.

23 Since our study was carried out, two newer versions of the AGQ have appeared. Elliot

1   and Murayama (2008) argued that there were various problems with the wording of the items

2   in the original AGQ, leading them to derive a modified instrument, the AGQ-Revised. This

3   focuses on achievement goals as aims rather than on their affective connotation. The findings

4   to date have confirmed rather than contradicted the patterns obtained in the present study and

5   in previous research. It is therefore likely that we would have obtained similar findings if we

6   had used the AGQ-Revised instead of the original AGQ. Subsequently, Elliot, Pekrun, and

7   Murayama (2011) presented a 3×2 model that separates achievement goals into three kinds:

8   "task" (purely mastery), "self" (mastery plus self-comparison) and "other" (comparison with

9   others). In each case, approach and avoidance goals are hypothesized. Clearly, this model too

10   warrants investigation in adult learners to identify the kinds of mastery goals that they pursue

11   and to establish whether and how the different kinds of achievement goal predict attainment.

12   **Conclusions**

13   Adult learners are increasingly numerous in higher education, and many researchers have

14   suggested that this group is distinctive in terms of their attitudes and approaches to studying.

15   Despite its popularity in the field of achievement motivation and its potential theoretical

16   relevance for adult learners, goal theory has rarely been examined using adult samples. When

17   it has been so used, key avoidance constructs have not been included in the instrumentation.

18   The current study examined the prevalence of different achievement goals in adult learners

19   using the 2×2 framework developed by Elliot and McGregor (2001) and related their goals

20   to several outcome measures.

21   The findings demonstrate that the achievement-goal framework is as appropriate in

22   adult learners as it is in younger students. The results of a factor analysis revealed that the

23   theoretical constructs were robust. With regard to the prevalence of different goals, adult

1   learners were less likely to adopt performance-approach goals than previous studies had

2   found in younger students. With regard to outcomes, the same patterns between goals and

3   outcomes were observed in adult learners as had been reported for younger students. This

4   suggests homogeneity rather than heterogeneity between the populations of adult and

5   younger students in higher education. However, a prevalent and key predictor of outcomes

6   was mastery avoidance. This was the only construct to predict students' dropping out of a

7   course. This finding should not be underplayed simply because goal–outcome relationships

8   are usually negative in the case of *performance* avoidance (Senko et al., 2011). In previous

9   literature, evidence for a relationship between mastery avoidance and outcomes is rather

10   equivocal, but this study has clearly shown both that adult learners may endorse such a goal

11   and that, if they do, they achieve lower grades and are more likely to drop out of a course.

12   Clearly, more studies are needed to verify these findings, but this study appears to

13   confirm that, when using achievement goals as a theoretical framework, (a) the AGQ is a

14   robust measure to use with adult learners, (b) adult learners demonstrate similar goals and

15   similar patterns of goal–outcome relationships to younger learners, but (c) that adult learners

16   may adopt mastery-avoidance goals and may suffer negative consequences as a result. We

17   look forward to other researchers employing goal theory with this distinctive population.

18

1   **References**

2   Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of*

3   *Educational Psychology*, *84*, 261–271. doi:10.1037/0022-0663.84.3.261

4   Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning

5   strategies and motivation processes. *Journal of Educational Psychology*, *80*, 260–267.

6   doi:10.1037/0022-0663.80.3.260

7   Babbie, E.R. (1990). *Survey research methods* (2nd ed.). Belmont, CA: Wadsworth.

8   Barron, K. E., & Harackiewicz, J. M. (2001). Achievement goals and optimal motivation:

9   Testing multiple goal models. *Journal of Personality and Social Psychology*, *80*, 706–

10   722. doi:10.1037//0022-3514.80.5.706

11   Beinart, S., & Smith, P. (1998). *National adult learning survey 1997* (Research Report No.

12   49). Sheffield: Department for Education and Employment. Retrieved from

13   https://www.education.gov.uk/publications/eOrderingDownload/RR49.pdf

14   Bong, M. (2005). Within-grade changes in Korean girls' motivation and perceptions of the

15   learning environment across domains and achievement levels. *Journal of Educational*

16   *Psychology*, *97*, 656–672. doi:10.1037/0022-0663.97.4.656

17   Brophy, J. (2005). Goal theorists should move on from performance goals. *Educational*

18   *Psychologist*, *40*, 167–176. doi:10.1207/s15326985ep4003_3

19   Cameron, J., & Pierce, W. D. (1994). Reinforcement, reward, and intrinsic motivation: A

20   meta-analysis. *Review of Educational Research*, *64*, 363-423.

21   doi:10.3102/00346543064003363

22   Campbell, H. L., Barry, C. L, Joe, J. N., & Finney, S. J. (2008). Configural, metric, and scalar

23   invariance on the modified Achievement Goal Questionnaire across African

24   American and White university students. *Educational and Psychological*

1   *Measurement, 68,* 988-1007. doi:10.1177/0013164408315269

2   Church, M. A., Elliot, A. J., & Gable, S. L. (2001). Perceptions of classroom environment,

3   achievement goals, and achievement outcomes. *Journal of Educational Psychology*,

4   *93*, 43–54. doi:10.1037//0022-0663.93.1.43

5   Ciani, K. D., & Sheldon, K. M. (2010). Evaluating the mastery-avoidance goal construct: A

6   study of elite college baseball players. *Psychology of Sport and Exercise*, *11*, 127–

7   132. doi:10.1016/j.psychsport.2009.04.005

8   Cohen, J. (1969). *Statistical power analysis for the behavioral sciences*. New York:

9   Academic Press.

10   Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*,

11   *16*, 297–334. doi:10.1007/BF02310555

12   Cury, F., Elliot, A. J., Da Fonseca, D., & Moller, A. C. (2006). The social–cognitive model of

13   achievement motivation and the 2×2 achievement goal framework. *Journal of*

14   *Personality and Social Psychology*, *90*, 666–679. doi:10.1037/0022-3514.90.4.666

15   Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human*

16   *behavior.* New York: Plenum.

17   Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, *41*,

18   1040–1048. doi:10.1037/0003-066X.41.10.1040

19   Dweck, C. S., & Elliott, E. S. (1983). Achievement motivation. In E. M. Heatherington (Ed.),

20   *Socialization, personality, and social development* (pp. 643–691). New York: Wiley.

21   Elliot, A. J. (2005). A conceptual history of the achievement goal construct. In A. J. Elliot &

22   C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 52–72). New York:

23   Guilford.

24   Elliot, A. J. (2008). Approach and avoidance motivation. In A. J. Elliot (Ed.) *Handbook of*

25   *approach and avoidance motivation* (pp. 3–14). New York: Psychology Press.

1   Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance

2   achievement motivation. *Journal of Personality and Social Psychology*, *72*, 218–232.

3   doi:10.1037/0022-3514.72.1.218

4   Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and

5   intrinsic motivation: A meditational analysis. *Journal of Personality and Social*

6   *Psychology*, *70*, 461–475. doi:10.1037/0022-3514.70.3.461

7   Elliot, A. J., & McGregor, H. A. (2001). A 2 × 2 achievement goal framework. *Journal of*

8   *Personality and Social Psychology*, *80*, 501–519. doi:10.1037//0022-3514.80.3.501

9   Elliot, A. J., McGregor, H. A., & Gable, S. (1999). Achievement goals, study strategies, and

10   exam performance: A meditational analysis. *Journal of Educational Psychology*, *91*,

11   549–563. doi:10.1037/0022-0663.91.3.549

12   Elliot, A.J., & Murayama, K. (2008). On the Measurement of Achievement Goals: Critique,

13   Illustration, and Application. *Journal of Educational Psychology*, *100*, 613-628.

14   doi:10.1037/0022-0663.100.3.613

15   Elliot, A.J., Murayama, K., & Pekrun, R. (2011). A 3 x 2 achievement goal model. *Journal of*

16   *Educational Psychology*, *103*, 632-648. doi: 10.1037/a0023952

17   Elliot, A. J., & Sheldon, K. M. (1997). Avoidance achievement motivation: A personal goals

18   analysis. *Journal of Personality and Social Psychology*, *73*, 171–185.

19   doi:10.1037/0022-3514.73.1.171

20   Elliot, A. J., & Thrash, T. M. (2002). Approach–avoidance motivation in personality:

21   Approach and avoidance temperaments and goals. *Journal of Personality and Social*

22   *Psychology*, *82*, 804–818. doi:10.1037/0022-3514.82.5.804

23   Eppler, M. A., & Harju, B. L. (1997). Achievement motivation goals in relation to academic

24   performance in traditional and nontraditional college students. *Research in*

25   *HigherEducation*, *38*, 557–573. doi:10.1023/A:1024944429347

1   Finney, S. J., Pieper, S. L., & Barron, K. E. (2004). Examining the psychometric properties of

2   the Achievement Goal Questionnaire in a general academic context. *Educational and*

3   *Psychological Measurement*, *64*, 365–382. doi:10.1177/0013164403258465

4   Grant, H., & Dweck, C. S. (2003). Clarifying achievement goals and their impact. *Journal of*

5   *Personality and Social Psychology*, *85*, 541–553. doi:10.1037//0022-3514.85.3.541

6   Harackiewicz, J. M., Barron, K. E., Carter, S. M., Lehto, A. T., & Elliot, A. J. (1997).

7   Predictors and consequences of achievement goals in the college classroom:

8   Maintaining interest and making the grade. *Journal of Personality and Social*

9   *Psychology*, *73*, 1284–1295. doi:10.1037/0022-3514.73.6.1284

10 Harackiewicz, J. M., Barron, K. E., Tauer, J. M., Carter, S. M., & Elliot, A. J. (2000). Short-

11   term and long-term consequences of achievement goals: Predicting interest and

12   performance over time. *Journal of Educational Psychology*, *92*, 316–330.

13   doi:10.1037//0022-0663.92.2.316

14 Harackiewicz, J. M., Barron, K. E., Tauer, J. M., & Elliot, A. J. (2002). Predicting success in

15   college: A longitudinal study of achievement goals and ability measures as predictors

16   of interest and performance from freshman year through graduation. *Journal of*

17   *Educational Psychology*, *94*, 562–575. doi: 10.1037//0022-0663.94.3.562

18 Harackiewicz, J. M., & Elliot, A. J. (1993). Achievement goals and intrinsic motivation.

19   *Journal of Personality and Social Psychology*, *65*, 904–915. doi:10.1037/0022-

20   3514.65.5.904

21 Harper, G., & Kember, D. (1986). Approaches to study of distance education students. *British*

22   *Journal of Educational Technology*, *17*, 212–222. doi:10.1111/j.1467-

23   8535.1986.tb00510.x

24 Higher Education Statistics Agency (2009). *Students in higher education institutions*

25   *2007/08*. Cheltenham: Higher Education Statistics Agency.

1 Hulleman, C. S., Schrager, S. M., Bodmann, S. M., & Harackiewicz, J. M. (2010). A meta-

2   analytic review of achievement goal measures: Different labels for the same

3   constructs or different constructs with similar labels? *Psychological Bulletin*, *136*,

4   422–429. doi:10.1037/a0018947

5 Hyde, J. S., & Durik, A. M.. (2005). Gender, competence and motivation. In A. J. Elliot & C.

6   S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 375-391). New York:

7   Guilford.

8 Kaplan, A., & Maehr, M. L. (2007). The contributions and prospects of goal orientation

9   theory. *Educational Psychology Review*, *19*, 141–184. doi:10.1007/s10648-006-9012-

10   5

11 Keegan, D. (1990). A theory for distance education. In M. Moore (Ed.), *Contemporary issues*

12   *in American distance education* (pp. 327–332). Oxford: Pergamon Press.

13 Kidder, L. H. (1981). *Selltiz, Wrightsman and Cook's Research methods in social relations*

14   (4th ed.). New York: Holt, Rinehart, & Winston.

15 Lieberman, D. A., & Remedios, R. (2007). Do undergraduates' motives for studying change

16   as they progress through their degrees? *British Journal of Educational Psychology*,

17   *77*, 379–395. doi:10.1348/000709906X157772

18 Lunneborg, P. W. (1987). Reentry of men and women in psychology. In P. J. Woods (Ed.), *Is*

19   *psychology the major for you? Planning for your undergraduate years* (pp 127–129).

20   Washington, DC: American Psychological Association.

21 Lunneborg, P. W. (1988). Reentry of women and men in psychology. In P.J. Woods (Ed.), *Is*

22   *psychology for them? A guide to undergraduate advising* (pp. 185–187). Washington,

23   DC: American Psychological Association.

24 Malka, A., & Covington, M. V. (2005). Perceiving school performance as instrumental to

25   future goal attainment: Effects on graded performance. *Contemporary Educational*

1   *Psychology*, *30*, 60–80. doi:10.1016/j.cedpsych.2004.04.001

2   Merriam, S. B., & Caffarella, R. S. (1991). *Learning in adulthood: A comprehensive guide*.

3   San Francisco: Jossey-Bass.

4   Midgley, C., Kaplan, A., & Middleton, M. (2001). Performance-approach goals: Good for

5   what, for whom, under what circumstances, and at what cost? *Journal of Educational*

6   *Psychology*, *93*, 77–86. doi:10.1037/0022-0663.93.1.77

7   Midgley, C., Maehr, M. L., Hruda, L. Z., Anderman, E., Anderman, L., Freeman, K. E., . . .

8   Urdan, T. (2000). *Manual for the Patterns of Adaptive Learning Scales*. Ann Arbor,

9   MI: University of Michigan. Retrieved from

10   http://www.umich.edu/~pals/PALS%202000_V13Word97.pdf

11   Moore, M. G. (1980). Independent study. In R. D. Boyd, J. W. Apps, & Associates,

12   *Redefining the discipline of adult education* (pp. 16–31). San Francisco: Jossey-Bass.

13   Murayama, K., Zhou, M., & Nesbit, J. C. (2009). A cross-cultural examination of the

14   psychometric properties of responses to the achievement goal questionnaire.

15   *Educational and Psychological Measurement, 69*, 266-286.

16   doi:10.1177/0013164408322017

17   Ng, C. (2006). The role of achievement goals in completing a course assignment: Examining

18   the effects of performance-approach and multiple goals. *Open Learning*, *21*, 33–48.

19   doi:10.1080/02680510500472189

20   Ng, C. C. (2008). Multiple-goal learners and their differential patterns of learning.

21   *Educational Psychology*, *28*, 439–456. doi:10.1080/01443410701739470

22   Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

23   O'Connor, B. P. (2000). SPSS and SAS programs for determining the number of components

24   using parallel analysis and Velicer's MAP test. *Behavior Research Methods,*

25   *Instruments, and Computers*, *32*, 396–402.

1   Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in

2   learning and achievement. *Journal of Educational Psychology*, *92*, 544–555.

3   doi:10.1037//0022-0663.92.3.544

4   Pintrich, P. R. (2003). Motivation and classroom learning. In W. M. Reynolds & G. E. Miller

5   (Eds.), *Handbook of psychology: Vol. 7. Educational psychology* (pp. 103–122).

6   Hoboken, NJ: Wiley.

7   Richardson, J. T. E. (2000). *Researching student learning: Approaches to studying in*

8   *campus-based and distance education*. Buckingham: SRHE & Open University Press.

9   Richardson, J. T. E., & King, E. (1998). Adult students in higher education: Burden or boon?

10   *Journal of Higher Education*, *69*, 65–88. doi:10.2307/2649182

11   Richardson, J. T. E., Morgan, A., & Woodley, A. (1999). Approaches to studying in distance

12   education. *Higher Education*, *37*, 23–55. doi:10.1023/A:1003445000716

13   Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (1991). Criteria for scale selection and

14   evaluation. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of*

15   *personality and social psychological attitudes* (pp. 1–16). San Diego, CA: Harcourt

16   Brace Jovanovich.

17   Sachs, J. (2001). A path model for adult learner feedback. *Educational Psychology*, *21*, 267–

18   275. doi:10.1080/01443410120065478

19   Schlossberg, N. K, Lynch, A. Q., & Chickering, A. W. (1989). *Improving higher education*

20   *environments for adults*. San Francisco: Jossey-Bass.

21   Senko, C., Hulleman, C. S., & Harackiewicz, J. M. (2011). Achievement goal theory at the

22   crossroads: Old controversies, current challenges, and new directions. *Educational*

23   *Psychologist*, *46*, 26–47. doi:10.1080/00461520.2011.538646

24   Sideridis, G. D., & Mouratidis, A. (2008). Forced choice versus open-ended assessments of

25   goal orientations: A descriptive study. *International Review of Social Psychology*, *21*,

1   219–248.

2   Sun, H., & Hernandez, D. (2010, May). *Examining measurement invariance of the*

3   *achievement goal questionnaire across American, Chinese and Dutch students.* Paper

4   presented at the Annual Meeting of American Educational Research Association,

5   Denver, Colorado.

6   Taylor, L., Morgan, A., & Gibbs, G. (1981). The "orientation" of Open University foundation

7   students to their studies. *Teaching at a Distance*, No. 20, pp. 3–12.

8   Van Yperen, N. W., Elliot, A. J., & Anseel, F. (2009). The influence of mastery-avoidance

9   goals on performance improvement. *European Journal of Social Psychology*, *39*,

10   932–943. doi:10.1002/ejsp.590

11   Waller, R. (2006). "I don't feel like 'a student', I feel like 'me'!": The oversimplification of

12   mature learners experience(s). *Research in Post-Compulsory Education*, *11*, 115–130.

13   doi:10.1080/13596740500508019

14   Ware, M. E., Busch-Rossnagel, N. A., Crider, A. B., Gray-Shellberg, L., Hale, K., Lloyd, M.

15   A., . . . Sgro, J. A. (1993). Developing and improving advising: Challenges to prepare

16   students for life. In T. V. McGovern (Ed.), *Handbook for enhancing undergraduate*

17   *education in psychology* (pp. 47–70). Washington, DC: American Psychological

18   Association.

19

1   **Table 1.** Achievement Goal Questionnaire: Principal components analysis with varimax

2   rotation

| | Principal components | | | |
Items	1	2	3	4
It is important to me to do better than other students. (PAP)	**.93**	.03	.04	.07
My goal in my courses is to get a better grade than most of the other students. (PAP)	**.91**	.01	.02	.12
It is important to me to do well compared to others in my courses. (PAP)	**.90**	.04	.04	.05
I worry that I may not learn all that I possibly could in my courses. (MAV)	.10	**.87**	.14	.11
I am often concerned that I may not learn all there is to learn in this course. (MAV)	.02	**.85**	.06	.19
Sometimes I'm afraid that I may not understand the content of this course as thoroughly as I'd like. (MAV)	-.04	**.85**	-.02	.16
It is important for me to understand the content of my courses as thoroughly as possible. (MAP)	-.03	.08	**.86**	.02
I want to learn as much as possible from all my courses. (MAP)	-.05	-.01	**.84**	.05
I desire to completely master the material presented in my courses. (MAP)	.22	.11	**.70**	.15
I just want to avoid doing poorly in my courses. (PAV)	.03	.16	.02	**.86**
My goal in this course is to avoid performing poorly. (PAV)	.07	.13	.15	**.83**
My fear of performing poorly is often what motivates me. (PAV)	.32	.33	.07	**.51**

3   *Note*. The original scale structure of the questionnaire was as follows: MAP, mastery

4   approach; MAV, mastery avoidance; PAP, performance approach; and PAV, performance

5   avoidance. Pattern/structure coefficients greater than .40 in absolute magnitude are shown in

6   bold.

7

1   **Table 2.** Descriptive statistics of students' scale scores in the Achievement Goal

2   Questionnaire

Scale	*M*	*SD*	Coefficient alpha	MAV	PAP	PAV
Mastery approach	5.96	0.93	.70	.17**	.13**	.23**
Mastery avoidance	4.27	1.57	.85		.09*	.42**
Performance approach	2.85	1.64	.91			.25**
Performance avoidance	4.38	1.57	.69			

3   *Note*. $N = 740$. The scale scores vary between a minimum of 1 and a maximum of 7. The last

4   three columns show the correlation coefficients among the four scales: MAV, mastery

5   avoidance; PAP, performance approach; PAV, performance avoidance.

6   *p < .05; **p < .01, two-tailed tests.

7

1 **Table 3.** Standardized regression coefficients using students' scale scores to predict course

2 ratings

Scale	Interest	Enjoyable
Mastery approach	.37**	.33**
Mastery avoidance	-.03	-.11**
Performance approach	-.05	-.03
Performance avoidance	.02	.03

3 *Note*. $N = 740$. The dependent variables were students' ratings of how interesting they

4 expected their course to be and how enjoyable they expected their course to be.

5 **p < .01$, two-tailed tests.

6

1   **Table 4.** Mean scale scores and course ratings by age and gender

	Age					Gender	
	Under 30	30–39	40–49	50–59	Over 59	Male	Female
	($n = 157$)	($n = 206$)	($n = 192$)	($n = 110$)	($n = 75$)	($n = 190$)	($n = 550$)
Mastery approach	6.11	5.91	5.90	5.98	5.91	5.89	5.99
Mastery avoidance	4.36	4.30	4.35	4.20	3.87	3.91	4.39
Performance approach	3.12	2.90	2.68	2.86	2.54	2.87	2.84
Performance avoidance	4.50	4.49	4.38	4.21	4.08	4.03	4.50
Interest	6.45	6.37	6.42	6.48	6.53	6.27	6.49
Enjoyable	6.18	6.10	6.16	6.28	6.33	6.04	6.23

2   *Note*. Scores vary between a minimum of 1 and a maximum of 7. The last two rows show the

3   students' mean ratings of how interesting they expected their course to be and how enjoyable

4   they expected their course to be. The statistically significant findings were as follows: older

5   students expected their course to be more enjoyable than did younger students ($p = .04$);

6   women achieved higher scores than men on mastery avoidance ($p < .001$) and performance

7   avoidance ($p = .001$); women expected their course to be both more interesting ($p = .001$) and

8   more enjoyable ($p = .03$) than did men.

9

1   **Table 5.** Mean scale scores for 547 students who completed their course and 189 students

2   who failed to complete their course

	Completed		Failed to complete	
Scale	*M*	*SD*	*M*	*SD*
Mastery approach	5.96	0.91	5.96	1.00
Mastery avoidance	4.19	1.54	4.49	1.66
Performance approach	2.83	1.62	2.87	1.68
Performance avoidance	4.38	1.57	4.35	1.56

3   *Note*. Scores vary between a minimum of 1 and a maximum of 7.

4

1   **Table 6.** Results of logistic regression analysis using scale scores to predict course

2   completion

Scale	*B*	*SE*(*B*)	Wald χ^2	*p*	Odds ratio
Mastery approach	0.02	0.09	0.07	.79	1.03
Mastery avoidance	-0.15	0.06	6.02	.01	0.86
Performance approach	-0.03	0.05	0.35	.55	0.97
Performance avoidance	0.08	0.06	1.81	.18	1.09

3   *Note*. $N = 736$. The effects of age and gender as predictor variables were statistically

4   controlled.

5

1   **Table 7.** Standardized regression coefficients using students' scale scores to predict marks

Scale	Coursework	Examination	Overall
Mastery approach	0.01	0.04	0.03
Mastery avoidance	-0.11*	-0.13*	-0.14**
Performance approach	0.15**	0.15**	0.17***
Performance avoidance	-0.14**	-0.16**	-0.17**

2   *Note*. $N = 444$. The effects of age and gender as predictor variables were statistically

3   controlled.

4   *$p < .05$; **$p < .01$, ***$p < .001$, two-tailed tests.

5

6