



Construction and initial validation of the Self-Worth Protection Scale

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Background. The self-worth theory of achievement motivation holds that in certain circumstances students stand to gain by deliberately withdrawing effort. When failure occurs despite effort, students are likely to conclude that failure resulted from lack of ability. Thus, withdrawing effort offers a defence against conclusions of low ability, thereby protecting self-worth.

Aim. We undertook to assess the psychometric properties of the Self-Worth Protection Scale (SWPS).

Sample. Data were obtained from 243 participants (Study 1) and 411 participants (Study 2) enrolled in undergraduate psychology courses at a university in the United States.

Method. We administered a number of scales, including the SWPS and scales assessing a fear of negative evaluation, academic self-esteem, uncertain global self-evaluations, self-handicapping, and causal uncertainty.

Results. Exploratory factor analysis indicated a three-factor solution (ability doubts, the importance of ability as a criterion of self-worth, and an avoidance orientation) utilising 33 of the original 44 items. A confirmatory factor analysis indicated that this three-factor solution was a poor fit of the data. After modifying the model, a confirmatory factor analysis indicated that a three-factor solution with 26 of the original items and a higher order factor of self-worth protection was an adequate fit of the data. Reliability measures were acceptable for the three subscales and total score. The total score of the SWPS was positively correlated with theoretically related constructs, demonstrating construct validity.

Conclusions. The SWPS appears to be a psychometrically sound scale to assist in identifying individuals who manifest self-worth protection in achievement situations.

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The self-worth theory of achievement motivation (e.g., Beery, 1975; Covington, 1984a, 1984b; Covington & Omelich, 1991) states that in certain situations students stand to gain by not trying – by deliberately withholding effort. While to withhold effort effectively blurs the link between poor performance and low ability, putting one's all into an achievement task and being greeted by failure stands as a ready indication of low ability. As a consequence, effort becomes the 'double-edged sword' of academic achievement (Covington & Omelich, 1979b). As effort (study) increases, so does the likelihood that poor achievement will reveal low ability. In turn, arriving at a conclusion that one has low ability triggers shame and diminished expectancies of future success, factors that have been found to have a negative impact on subsequent achievement outcomes (Covington & Omelich, 1979a, 1981). The self-worth theory of achievement motivation holds that students prefer the guilt associated with low effort to the humiliation that arises when failure follows high effort (Covington & Omelich, 1985).

Covington and Omelich (1981) point out that this deterioration in feelings about ability and future success expectations is accelerated over successive failures by the decreasing plausibility of the student's attempts to attribute responsibility to factors beyond the individual's control. When the stock of externally attributable reasons – such as teacher capriciousness, bad luck or task difficulty – are discredited, the individual's sources of self-protection wither and there is no recourse but to attribute failure to low ability. The tendency to do so increases with increased effort. As a consequence, a tension arises between a motive to achieve success by trying hard and a motive to avoid the ignominy of defeat by withdrawing effort.

This strategy is associated with a curious inconsistency in students' academic performances. While on some occasions they perform well, and often extremely well, on other occasions they perform poorly. It would be reasonable to assume that the level of objective difficulty of the task in question might be responsible for these varying performance outcomes. However, it turns out not to be so. Rather, the critical factor is the extent to which poor performance is expected to reveal low ability (Craske, 1985, 1988; Thompson, 1993; Thompson, Davidson, & Barber, 1995). When poor performance is likely to reflect low ability, a situation of *high* evaluative threat is created. In such situations, these students perform poorly. On the other hand, where a mitigating excuse allows poor performance to be attributed to a factor unrelated to ability, a situation of *low* evaluative threat is created. In such situations, these same students perform well. Students who show these different performances in situations of high-versus-low evaluative threat are known as *self-worth protective* (Thompson, 1999) or *failure-avoiding students* (Covington & Omelich, 1991).

While in the short term withdrawing effort spares the individual from conclusions of inability and diminished self-worth, in the longer term the effects of self-worth protection are evident in perpetual resort to avoidance strategies in situations that involve threat to self-worth, compounding suspicions of personal incompetence to such a degree that, eventually, conclusions of low ability are inescapable. External accounts for poor performance are no longer believable to others, far less to the perpetrator (e.g., Arkin & Baumgardner cited in Baumgardner & Arkin, 1987; Grant, 1996; Higgins & Berglas, 1990; Springstein & Chafe, 1987). At this point, the individual is on an attributional slippery slide. In bald terms, the eventual consequence of perpetual rejection of blame is acceptance of failure (Covington & Omelich, 1991). As Covington (1984a) observes, the defensive and self-defeating tactics of failure avoidance 'progressively cut students off from an already scarce supply of classroom rewards' (p. 91). As opportunity to externalise failure on the part of self-worth protective students

reduces, the credibility of self-defensive alibis wither. Ultimately self-worth protective students have no recourse but to attribute failure to low ability. As a consequence, the avoidant strategies of these students ultimately backfire. The end result is internalisation of failure, diminished expectancies for success and low achievement (Thompson, 1996, 1999).

Mediating personality variables

Self-worth protective or failure-avoiding students form just one category of a number of achievement orientations that focus on the achievement behaviours of students. Covington and Omelich (1991) proffer a model of achievement motivation that identifies additional achievement orientations, describing distinctively different behavioural groups based on how they classify on two orthogonal dimensions: *approach* (success orientation) and *avoidance* (fear of failure). These two orthogonal dimensions yield four possible achievement orientations: success-oriented, overstrivers, failure-accepters, and failure-avoiders. These groups were identified as distinct through discriminant analysis based on self-reports within three behavioural domains, these being *ability perceptions*, *anxiety arousal*, and *degree and quality of study habits*, behaviours assumed by these researchers to be associated with approach/avoidance tendencies.

Success-oriented students are high in approach behaviour and low in avoidance behaviour. These students approach each new achievement task with confidence, expecting a positive outcome. They are not unduly perturbed by the prospect of failure and are most likely to be stayers in the academic race, being little troubled by excessive anxiety and, as a consequence, least likely to experience emotional wear and tear and burnout.

Overstrivers share a high hope of success with success-oriented students but are conflicted by a high fear of failure. They resolve their ambivalence in achievement contexts by leaving no stone unturned in a desire to minimise risk of failure. These students are more likely to be troubled by anxiety arising from lack of confidence in their ability and concerns about the likelihood of a successful outcome.

Failure-accepting students are low in approach behaviour and yet low in avoidance behaviour. These students are most likely to react with passivity and/or indifference in achievement situations, having internalised a conviction of their personal incapacity to succeed.

Failure-avoiding students are those who, like overstrivers, are motivated by a desire to avoid failure. However, unlike overstrivers they have a low expectancy of success. For failure-avoiding students, their low expectancy of success becomes a psychological barrier that drives them to the low effort strategies described above. Covington and Omelich (1991) found failure-avoidant students differed from all other groups in their lower task-specific estimates of ability. They were more uncertain of their ability, had higher trait anxiety, and engaged in more wishful thinking than students in the other groups. They also tended to externalise blame for poor performance, expressed more concerns that the quantity and quality of their effort would not be sufficient for success, and expressed higher levels of fear that their subjective evaluations of the likelihood of failure would

disrupt their educational and career plans. Other studies have linked self-worth protection with low academic self-esteem, uncertain global self-esteem, and with a tendency to reject their own actions as a cause of their achievement success (Craske, 1985, 1988; Thompson, 1993; Thompson *et al.*, 1995).

In many respects, failure-avoidant students conform to descriptions by Jagacinski and Nicholls (1990) of students with low self-estimates of ability who base their self-worth on normative ability criteria. Intent on vindicating their ability relative to others, these students, like failure-avoiding students, pursue social comparison goals and view ability as a static, immutable entity which is either confirmed or disconfirmed from one occasion to the next, with mistakes indicating personal failure and inadequacy (Dinnel & Thompson, 2001; Dweck, 1986). Despite understandings about the personality associated with self-worth protective students, there is as yet no scale that encapsulates key tenets of self-worth theory, enabling identification of self-worth protective students.

The present study

With this in mind, the purpose of the present study was to test the reliability and validity of the Self-Worth Protection Scale (SWPS). Towards this end, we constructed groups of items that represented themes evident in the literature on self-worth protection. These were an avoidance orientation, safe goal setting, sensitivity to evaluative threat, fear of failure, an emphasis on ability as a criterion of self-worth, effort fears, and rejection of success. We compared the SWPS to measures of academic self-handicapping, academic self-esteem, certainty of self-esteem, confidence in ability, causal uncertainty, fear of negative evaluation, and impostor fears. We predicted that the SWPS would be a reliable instrument with a multiple factor solution as the best explanation of the data.

In demonstration of construct validity, we predicted that SWPS subscale scores would be positively correlated with academic self-handicapping, causal uncertainty, fear of negative evaluation, and impostor fears. Finally, we predicted that the SWPS subscale scores would be negatively related to academic self-esteem, and confidence in ability.

STUDY 1: EXPLORATORY FACTOR ANALYSIS AND INITIAL VALIDITY AND RELIABILITY ESTIMATES

The purpose of Study 1 was to examine the factor structure of the Self-Worth Protection Scale using exploratory factor analysis. A secondary purpose was to establish initial evidence for construct-related validity and reliability of the Self-Worth Protection Scale.

Method

Participants

Participants were 271 undergraduate psychology students (183 women, 88 men) at Western Washington University, who received course credit for participating. Intact data were obtained for 243 participants (166 women, 77 men) who comprised the final

data set for Study 1. The ages of these participants ranged from 18–28 with a mean age of 19.79 ($SD = 1.76$). The breakdown of the ethnic group with which participants indicated they most identified was as follows: African American ($n = 5$), American Indian ($n = 6$), Asian American ($n = 17$), European American ($n = 194$), Latino ($n = 8$), Pacific Islander ($n = 2$), and mixed ethnicity ($n = 11$).

Materials

Participants completed a questionnaire packet that contained the Self-Worth Protection Scale, the Revised Academic Self-Handicapping Scale, the Confidence in Ability Scale, the Clance Impostor Phenomenon Scale (revised for academic contexts), the Causal Uncertainty Scale, the Fear of Negative Evaluation Scale, the Academic Self-Esteem subscale of the Self-Descriptive Questionnaire III, the Global Self-esteem Uncertainty Scale, and a demographic questionnaire. The scales were placed in a packet in counterbalanced order across sets of packets with the demographic questionnaire always the final item in the packet. Since there was a large number of scales, not all of the possible orderings of scales were used. For those counterbalanced orders that were used, there was no difference in the scores of any of the measures. Thus, we combined the data across order for all subsequent analyses.

Self-Worth Protection Scale (Dinnel & Thompson, 2000). The Self-Worth Protection Scale (SWPS) is a 44-item scale that purports to measure students' tendencies to intentionally withdraw effort in order to avoid the negative implications of poor performance in terms of damage to self-worth. Sample items are: 'I underachieve relative to my level of ability, choosing easy goals in order to ensure success', and 'I take action to avoid failure at all costs'. Respondents rate each item on a 7-point scale ranging from *Not very true of me* (1) to *Very true of me* (7). The psychometric properties of this scale are discussed below.

Revised Academic Self-Handicapping Scale (Murray & Warden, 1992). The Revised Academic Self-Handicapping Scale-Revised (RASH) is a 24-item scale that measures respondents' attitudes toward or behaviours that lead them to voluntarily adopt or claim handicaps such as emotional distress or illness when future outcomes are uncertain and when no external account for poor academic performance is available. Sample items from the RASH are: 'My emotions often get in the way of my getting anything done', and 'I usually find myself easily distractible when I am trying to work'. Respondents rate each item on a 6-point scale with end-point designations of *Strongly agree* (1) to *Strongly disagree* (6). The test-retest of the RASH as determined from the present study is .86, while the internal consistency (coefficient alpha) is .85. Construct validity is demonstrated by significant correlations with general self-handicapping ($r = .66$), the impostor phenomenon ($r = .57$), negative attitudes toward self ($r = .30$), fear of negative evaluation ($r = .51$), causal uncertainty ($r = .48$), and academic self-esteem ($r = -.44$).

Confidence in Ability Scale (Henderson, Dweck, & Chiu, 1992). The Confidence in Ability Scale (CIA) contains three pairs of items, one depicting high confidence and one depicting low confidence. Respondents select between the item in each pair that best describes them (e.g., 'I usually think I am intelligent' vs. 'I wonder if I am intelligent') and then rate the degree to which the selected item is true of them on a 3-point scale

from *Very true* (1) and *Sort of true* (3). Scoring is then recoded to a 6-point system in which a high score indicates a more confident view of ability. Henderson *et al.* (1992) demonstrated high internal consistency for the CIA ($\alpha = .81$) and high test-retest reliability for a one-week delay ($r = .83$). In addition, Neeman and Harter (1986) found that CIAS was highly correlated ($r = .77$) with the perceived intellectual competence subscale for the Self-perception Profile for College Students and less highly correlated ($r = .43$) with the Rosenberg Self-Esteem Scale, demonstrating convergent validity.

Clance Impostor Phenomenon Scale (Clance, 1985). The Clance Impostor Phenomenon Scale (CIPS) is a 20-item measure designed to assess the degree to which individuals are anxious that others will discover that they are not truly intelligent and that they will be eventually exposed for the impostors that they are. Sample items are 'At times, I feel my success was due to some kind of luck', and 'I rarely do a project or task as well as I'd like to do it'. Items are rated on a 5-point scale with designations of *Not at all true of me* (1), *A little true of me* (2), *Quite true of me* (3), *Mostly true of me* (4), and *Very true of me* (5). Cozzarelli and Major (1990) report a coefficient alpha of .85 for the CIPS. Evidence of construct validity is available by way of significant correlations with defensive pessimism ($r = .52$) and self-esteem ($r = -.51$). Chrisman, Pieper, Clance, Holland, and Glickauf-Hughes (1995) found the CIPS to have an internal consistency of .92. Chrisman *et al.* (1995) have also demonstrated construct validity for the CIPS through significant correlations with self-esteem ($r = -.54$), fear of negative evaluation ($r = .54$), social recognition ($r = .27$), and dominance ($r = -.33$). In accordance with King and Cooley's (1995) recommendation, two items on Clance's Impostor Scale were slightly modified in order to tailor the scale to academic achievement situations. A coefficient alpha for the revised scale is given below.

Causal Uncertainty Scale (Edwards, Weary, & Reich, 1998). The Causal Uncertainty Scale (CUS) is a 14-item scale that measures the degree to which individuals are uncertain of the causes of events in their lives. Sample items are: 'When I receive poor grades, I usually don't understand why I did so poorly' and 'I do not know what it takes to get along with others.' Respondents are asked to rate each item on a 6-point scale with end-point designations of *Strongly agree* (1) and *Strongly disagree* (6). Edwards *et al.* (1998) report a coefficient alpha of .86 and found the CUS to be significantly correlated with depression ($r = .37$), perceived lack of control ($r = .51$), anxiety ($r = .41$), intolerance for ambiguity ($r = .26$), self-esteem ($r = -.40$), neuroticism ($r = .32$), decisiveness ($r = -.28$) and need for cognition ($r = -.42$), demonstrating construct validity.

Fear of Negative Evaluation (Watson & Friend, 1969). The Fear of Negative Evaluation Scale (FNE) is a 30-item scale that assesses the extent to which people experience apprehension about being negatively evaluated by other people. Sample items from the FNE are 'I am afraid that others will not approve of me', and 'I worry about what other people think of me even when I know it won't make any difference'. Respondents are asked to rate the degree to which each statement is characteristic of them on a 5-point scale with designations of *Not at all characteristic of me* (1), *Slightly characteristic of me* (2), *Moderately characteristic of me* (3), *Very characteristic of me* (4), and *Extremely characteristic of me* (5). The brief form of the FNE scale (Leary, 1983), which was used in the present study, uses 12 of the original 30 items of Watson and Friend (1969). An inter-item reliability of .90 and test-retest reliability of .75 are reported for the brief form of the FNE (Leary, 1983).

Academic Self-Esteem Subscale of the Self-Descriptive Questionnaire III (Marsh, 1990). Academic self-esteem and certainty of global self-esteem were assessed using the respective subscales of the Marsh (1990) Self-Descriptive Questionnaire III (SDQ III). The Academic Self-Esteem subscale (ASES) assesses an individual's self-esteem in academic situations using 30 items such as 'I learn quickly in most academic subjects'. Respondents are asked to indicate their disagreement/agreement with each item on a 9-point scale with end-point designations of *Strongly disagree* (1) and *Strongly agree* (9). Marsh (1990) reports Cronbach's alphas for the ASES ranging from .76 to .95, with a mean of .89. Marsh also reports median test-retest reliabilities of .87 for a one-month interval and .74 for an 18-month interval.

Global Self-Esteem Uncertainty Scale (Thompson, 1993). Since global self-esteem uncertainty, rather than merely global self-esteem, is a key factor in the use of self-worth protection strategies, Thompson (1993) modified the Global Self-Esteem subscales of Marsh's (1990) SDQ III to obtain a measure of global self-esteem uncertainty. The Global Self-Esteem Uncertainty Scale (GSEUS) is a 12-item scale that measures how individuals feel about themselves in general. Respondents are given the items from the Global Self-Esteem subscale of Marsh's (1990) SDQ III in a format in which respondents are instructed to rate each item as either *like me* or *unlike me*. Respondents then rate the uncertainty of their dichotomous responses to each item on a 5-point scale with end-point designations of *Very certain* (1) and *Not at all certain* (5). Since the focus is on the degree of uncertainty that the respondent feels relative to the item, only the uncertainty ratings are considered. The uncertainty responses are summed across the 12 items with a high score reflecting global self-esteem uncertainty. An item from the GSEUS is 'Overall, I have pretty positive feelings about myself'.

Procedure

Participants were tested in groups of approximately 60 each in a large lecture hall designed for 500 students. They were encouraged to distribute themselves throughout the lecture hall to ensure confidentiality of responses. Participants were advised that they would be given a packet of questionnaires and told that the purpose of the study was to test the psychometric properties of one of the questionnaires. They were also informed that there were no correct answers to items, but to respond to the items in a way that was true for them. Although participants were not given a time limit, all participants completed the packet within an hour. Participants then returned four weeks later to complete the SWPS for the second occasion.

Results

With the exception of test-retest reliability measures, the analyses for Study 1 are all based on the data from the initial testing of participants.

Exploratory factor analysis

In order to assess the degree to which the SWPS measured multidimensional constructs, we submitted the data to an exploratory factor analysis using a maximum likelihood extraction with an oblique rotation. Twelve factors emerged with eigenvalues larger

Table 1. Total variance explained in the EFA for factors whose eigenvalues exceed 1.00 in Study 1

Factor	Eigenvalue	% of Variance	Cumulative % of Variance
1	9.25	21.03	21.03
2	4.00	9.09	30.12
3	2.78	6.31	36.43
4	1.92	4.37	40.80
5	1.77	4.02	44.82
6	1.50	3.42	48.24
7	1.40	3.19	51.43
8	1.29	2.93	54.36
9	1.16	2.64	57.00
10	1.11	2.52	59.52
11	1.06	2.40	61.92
12	1.05	2.39	64.31

than 1.00 that accounted for 64.31% of the variability (see Table 1). Since only three of those factors accounted for more than 5% of the variability and the scree test indicated that three factors best described the data, a three-factor solution was considered the most parsimonious explanation of the data. These three factors accounted for 32.84% of the variance. The first factor accounted for 21.03% of the variance and appears to focus primarily on *ability doubts*. The second factor accounted for 9.09% of the variance that seems most related to *importance of ability*. The third factor accounted for 6.31% of the variance and is most related to an *avoidance orientation*.

Fifteen items (5, 12, 13, 18, 19, 23, 30, 33, 35, 37, 38, 40, 42, 43, 44) loaded solely on the first factor (Ability Doubts), 7 items (6, 8, 16, 20, 24, 28, 31) on the second factor (Importance of Ability), and 12 items (1, 2, 3, 7, 9, 14, 15, 21, 26, 27, 29, 41) on the third factor (Avoidance Orientation) when a factor loading criterion of .30 or higher was used (see Kline, 1994). Ten items (items 4, 10, 11, 17, 22, 25, 32, 34, 36, and 39) did not load on any of the factors at criterion level (see Table 2). These 10 items and Item 6 were eliminated either because they did not load highly on any of the factors or because they loaded negatively on a single factor. This resulted in a change to only the Importance of Ability subscale as listed above such that only 6 items (8, 16, 20, 24, 28, 31) comprised the final subscale score.

Item/total correlations

To determine whether any of the remaining items were problematic, correlations between the response to a particular item and the sum of the responses to all other items were obtained for each of the three subscales. The item/total correlations ranged from .37 to .70 for the Ability Doubts subscale, .37 to .65 for the Importance of Ability subscale, and .34 to .67 for the Avoidance Orientation subscale. Since the elimination of any one of the items from any of these subscales would not increase the value of Cronbach's alpha for each subscale (see Table 3), all of the remaining items from the factor analysis were retained for each subscale.

Evidence of reliability

Participants were asked to complete the SWPS on two separate occasions, at least 4

Table 2. Exploratory factor analysis of the Self-Worth Protection Scale for three factors for Study I

Item	I	II	III
1. I avoid academic situations in which I can't do as well as I would like.	.17	-.16	.51
2. It's easy to try hard when my performance isn't being judged.	-.05	.09	.41
3. I tend to 'play it safe' with my studies and choose goals that are within my reach.	-.04	-.14	.44
4. I rarely worry about the consequences of failing.*	.12	.11	-.13
5. I don't doubt my ability to do well academically.*	.51	-.20	.06
6. I select academic goals that test my abilities.*	.15	-.51	.28
7. I withdraw from challenges due to fear of failure.	.29	-.11	.47
8. I find it necessary to do well academically in order to preserve a sense of self-worth.	.27	.61	-.02
9. I find it easiest to put my best effort into something when there is little risk of failure.	.09	.12	.61
10. After an initial failure, I redouble my efforts.*	.13	-.25	.19
11. I do my best to ensure academic success by not deviating from what's required.	-.03	.23	.04
12. I compare my ability to those around me and think that they may be more intelligent than I am.	.44	.21	.16
13. I'm afraid that I will fail at something even though I often do pretty well.	.52	.26	.12
14. I avoid challenges that might result in failure.	.28	-.13	.54
15. I'm best able to try my hardest at something when failing at that thing won't reveal low ability.	-.03	.15	.65
16. I strive to ensure academic success through dogged persistence and hard work.	.06	.63	-.06
17. My self-worth is independent of how I perform academically.*	.26	.15	.03
18. I lack confidence in my ability to do well.	.69	.09	.16
19. When I succeed at something I'm confident I'll be able to repeat that success.*	.56	-.24	-.18
20. Doing well academically allows me to preserve a sense of self-worth.	.16	.63	.14
21. I perform at my best when there is little risk of failure.	.05	.14	.77
22. I take action to avoid failure at all costs.	.05	.22	.23
23. I find it difficult to give of my best due to a persistent fear of failure.	.42	.03	.27
24. I closely follow assignment requirements in order to avoid being marked down.	-.03	.44	.19
25. After an initial setback in my studies, I cut my losses and move on to something else.	.23	-.06	.27
26. I underachieve relative to my level of ability, choosing easy goals in order to ensure success.	.12	-.29	.56
27. Setting goals that are within the limits of my ability to achieve allows me to preserve a sense of self-worth.	.10	.26	.54
28. I strive to ensure success by a thorough approach, leaving no stone unturned.	-.09	.60	.04
29. I try to avoid situations in which failure will reveal low effort.	.19	.03	.46
30. When I succeed at something I feel relieved rather than self-congratulatory.	.54	-.04	.07
31. I must prove I'm worthwhile through my achievements.	.29	.53	.09
32. When I fail after putting a lot of effort into something I'm unlikely to conclude I have low ability.*	.15	-.04	-.03
33. I'm afraid of putting too much effort into an academic task in case I fail.	.40	-.11	.28
34. When I succeed it's always partly due to other people or circumstances.	.22	-.02	.11
35. When I succeed after a lot of effort, it doesn't prove I have ability.	.54	-.08	.04

Item	I	II	III
36. When there is a likelihood of failing at something, I think it's best not to put all my effort into it.	.23	-.25	.29
37. I worry about not succeeding with a project or an examination, even though others around me have considerable confidence that I will do well.	.42	.14	-.01
38. If I receive praise or recognition for something I tend to discount the importance of my own achievement.	.55	.03	-.06
39. I always try to avoid situations that are likely to reveal low ability.	.25	.18	.23
40. I'm not particularly threatened by situations that are likely to reveal low ability.*	.42	.08	.07
41. I perform at my best when my performance isn't being judged.	.03	.02	.50
42. I often feel my success was due to the ease of the task or things going in my favour.	.40	-.11	.19
43. When I face new challenges, I doubt my ability to do well.	.64	-.04	.12
44. I don't rate my academic ability very highly.	.58	-.23	.13

*Item is recoded when scoring.

weeks apart. A test-retest reliability of .87 was established for the Ability Doubts subscale, .82 for the Importance of Ability subscale, .83 for the Avoidance Orientation subscale, and .88 for the total Self-Worth Protection Score (the sum of the three subscales) using an intraclass correlation coefficient.

A measure of internal consistency was computed for the subscales of the SWPS. The internal consistency using Cronbach's alpha was .88 for the Ability Doubts subscale, .77 for the Importance of Ability subscale, and .86 for the Avoidance Orientation subscale. For the total SWPS score using the 33 items that comprised the three subscale scores, the internal consistency analysis yielded a Cronbach's alpha of .91. Table 3 shows the internal consistencies for all scales used in Study 1.

Evidence of construct-related validity

Construct-related validity can be demonstrated by the examination of hypothesised theoretical linkages between the construct of interest and other constructs (Schwab, 1980). Hence, zero-order correlations were conducted to establish the validity of the subscales of the SWPS as well as the total score. Ability Doubts, Importance of Ability, and Avoidance Orientation were significantly and positively correlated with academic self-handicapping, self-handicapping, impostor fears, fear of negative evaluation, and causal uncertainty. With the exception of impostor fears, the correlations for Ability Doubts and Avoidance Orientation were at a moderate level indicating some shared variability as is advised by empirical studies investigating self-worth protection. However, the overlap between the CIPS and the Ability Doubts subscale is somewhat large and may be a cause for concern about the distinctiveness of the Ability Doubts subscale relative to the CIPS. Furthermore, correlations with the Importance of Ability subscale were somewhat low, indicating that this scale may need revision to improve construct validity. The total SWPS score was moderately correlated with academic self-handicapping, self-handicapping, impostor fears, fear of negative evaluation, and causal uncertainty. Consistent with predictions, the Ability Doubts, Avoidance Orientation, and total SWPS scores were negatively and significantly correlated with academic self-esteem, confidence in ability, and grade point average, whereas Importance of Ability was either uncorrelated, or correlated with these measures at a low level (see Table 3).

Table 3. Zero order correlations of the scale scores in Study 1 ($N = 243$)

	1	2	3	4	5	6	7	8	9	10	11
1.	—										
2.	.25**	—									
3.	.60**	.20**	—								
4.	—	—	—	—							
5.	.49**	.21**	.44**	.42**	—						
6.	.71**	.22**	.46**	.66**	.41**	—					
7.	.38**	.27**	.21**	.37**	.26**	.34**	—				
8.	.45**	.03	.25**	.36**	.41**	.39**	.14*	—			
9.	.30**	.07	.13*	.25**	.28**	.26**	.32**	.37**	—		
10.	-.55**	-.02	-.38**	-.48**	-.42**	-.33**	-.16**	-.27**	-.20**	—	
11.	-.52**	-.18**	-.47**	-.46**	-.59**	-.30**	-.05	-.33**	-.20**	.55**	—

* $p < .05$, ** $p < .01$

Note. Coefficient alphas for data in Study 1 are included in parentheses after each scale below:

1. Ability Doubts (.88); 2. Importance of Ability (.77); 3. Avoidance Orientation (.86); 4. Self-Worth Protection-Total Score (.91); 5. Revised Academic Self-Handicapping (.83); 6. Clance Impostor Phenomenon (.91); 7. Fear of Negative Evaluation (.90); 8. Causal Uncertainty (.85); 9. Global Self-Esteem Uncertainty (.90); 10. Confidence in Ability (.75); 11. Academic Self-Esteem (.89)

STUDY 2: CONFIRMATORY FACTOR ANALYSIS AND EVIDENCE OF VALIDITY AND RELIABILITY

The purpose of Study 2 was to examine whether the factor structure obtained from the exploratory factor analysis in Study 1 was the best factor structure model by utilising a confirmatory factor analysis. A secondary purpose was to establish evidence for construct-related validity and reliability if the items comprising the subscales changed as a result of the confirmatory factor analysis.

Method

Participants

Participants were 415 undergraduate psychology students at Western Washington University, who received course credit for participating. Intact data were obtained for 411 participants (254 women, 157 men). Since modifications to the subscales were necessary as a result of the confirmatory factor analysis, participants were randomly assigned to one of two samples: a calibration sample to establish the model and a validation sample to determine the generalisability of the model. The calibration sample was comprised of 206 participants (125 women, 81 men). The ages of the calibration sample participants ranged from 18-39 with a mean age of 19.62 ($SD = 2.11$). The breakdown of the ethnic group with which participants indicated they most identified was as follows: African American ($n = 1$), American Indian ($n = 3$), Asian American ($n = 14$), European American ($n = 171$), Latino ($n = 4$), Pacific Islander ($n = 1$), and mixed ethnicity ($n = 12$). The validation sample was comprised of 205 participants (129 women, 76 men). The ages of the validation sample participants ranged from 18-32 with a mean age of 19.72 ($SD = 1.93$). The breakdown of the ethnic group with which participants indicated they most identified was as follows: African American

($n = 1$), American Indian ($n = 4$), Asian American ($n = 15$), European American ($n = 170$), Latino ($n = 5$), Pacific Islander ($n = 3$), and mixed ethnicity ($n = 7$).

Materials and procedure

The materials and procedure were the same as described in Study 1 with the exception of the delay interval for completing the SWPS on a second occasion. In Study 2, this delay interval was only 2 weeks.

Results

With the exception of test-retest reliability measures, the analyses for Study 2 are all based on the data from the initial testing of participants.

Confirmatory factor analysis

The model from the exploratory factor analysis was tested using a confirmatory factor analysis for the data from the participants in the calibration sample. The adequacy of the fit of the data was determined using the AMOS 4.0 (Arbuckle & Wothke, 1999) program. Following Hoyle and Panter's (1995) recommendations, several indices were used to assess goodness of fit. Fit was initially assessed using the chi-square statistic. However, since the chi-square statistic is sensitive to sample size, the chi-square value is usually inflated, demonstrating a poor fit. Thus, three additional fit indices are reported: the goodness of fit index (GFI; Jöreskog & Sörbom, 1986), the comparative fit index (CFI; Bentler, 1990), and the root mean square error of approximation (RMSEA; Steiger, 1990). For both GFI and CFI, estimates are scaled on a range from 0 to 1, with values of .9 or above indicative of acceptable values of fit (Bentler & Bonnett, 1980). The RMSEA index has a lower bound of 0 with values less than .08 indicating a reasonable error of approximation and values less than .05 indicating a close fit of the model (Browne & Cudeck, 1993).

The data of the calibration sample were a poor fit for the three-factor model derived from exploratory factor analysis; $\chi^2(494) = 1441.30$, $p < .001$; GFI = .78; CFI = .74; RMSEA = .10. Modification indices were examined for possible improvement to the fit of the hypothesised model. A series of modifications was then submitted to determine if the data would provide a better fit to the revised model. In this regard, Byrne (2001) recommends making one modification at a time, evaluating the resultant fit and modification indices at each step.

Of the 33 items comprising the model from the Self-Worth Protection Scale, seven (items 9, 12, 13, 19, 27, 31, and 37) were shown to load on multiple factors. Furthermore, three error covariances were exceptionally high compared with others. Two of these covariances involved the Avoidance Orientation factor, one pair shared a common theme of performance being judged (items 2 and 41) and the other pair shared a common theme of low risk (items 15 and 21), while the third covariance involved the Importance of Ability factor with a common theme of persistence (items 16 and 28). Since each pair of items of the three error covariances came from the same factor and had a more specific commonality, correlating their error terms is defensible. Although the resulting model resulted in an improvement over the original model, $\Delta\chi^2(198) = 670.47$, $p < .05$, the fit indices indicated a less than acceptable fit based

on $\chi^2(299) = 770.83$, $p < .001$, the GFI (.88) and the CFI (.87), and a reasonable fit based on the RMSEA (.078).

To determine if a higher order factor would improve the fit of the model, we tested a model in which Self-Worth Protection served as a second order factor for the three first order factors (Ability Doubts, Importance of Ability, Avoidance Orientation). The resulting higher order model resulted in an improvement over the revised model, $\Delta\chi^2(3) = 161.21$, $p < .001$, and the fit indices were more indicative of an adequate fit: $\chi^2(296) = 609.42$, $p < .001$, GFI = .90, CFI = .90, and RMSEA = .07.

This higher order model was then cross-validated using the data from the validation sample to ensure that the modifications were not restricted to the calibration sample. The results yielded a non-significant change in the fit of the model with the validation sample, $\Delta\chi^2(3) = 5.28$, $p > .05$. Thus, the second order confirmatory factor analysis model generalises across samples and allows us to compute a total self-worth protection score from the sum of the three first order factors: Ability Doubts (items 5, 18, 23, 30, 33, 35, 38, 40, 42, 43, 44), Importance of Ability (items 6, 16, 20, 24, 28), and Avoidance Orientation (items 1, 2, 3, 7, 14, 15, 21, 26, 29, 41).

Evidence of reliability

Participants were asked to complete the SWPS on two separate occasions, 2 weeks apart. A test-retest reliability of .91 was established for the Ability Doubts subscale, .85 for the Importance of Ability subscale, .88 for the Avoidance Orientation subscale, and .92 for the total Self-Worth Protection Score (the sum of the three subscales) using an intraclass correlation coefficient.

A measure of internal consistency was computed for the subscales of the SWPS. The internal consistency using Cronbach's alpha was .85 for the Ability Doubts subscale, .75 for the Importance of Ability subscale, and .86 for the Avoidance Orientation subscale. For the total SWPS score using the 26 items that comprised the three subscale scores, the internal consistency analysis yielded a Cronbach's alpha of .89. Table 4 shows the internal consistencies for all scales used in Study 2.

Evidence of construct-related validity

Using zero-order correlations to demonstrate construct-related validity (Schwab, 1980) yielded a pattern of relationships consistent with those Study 1. The correlations for Study 2 can be seen in Table 4.

GENERAL DISCUSSION

The results of the present study indicate that the Self-Worth Protection Scale is a reliable and valid instrument for identifying self-worth protective students. The factor analysis yielded a three-factor solution for the SWPS: Ability Doubts, Importance of Ability, and Avoidance Orientation. The three-component structure of the SWPS is consistent with previous findings that have emphasised the salience of ability as a criterion of self-worth (e.g., Covington, 1984b; Thompson, 1994, 1996), an avoidance orientation (Covington & Omelich, 1991) and low academic self-esteem (e.g., Covington & Omelich, 1991; Thompson, 1993). However, it should be noted that the three subscales are moderately correlated (.15, .22, and .69 from Study 2). On the basis of the confirmatory factor

Table 4. Zero order correlations of the scale scores in study 2 ($N = 411$)

	1	2	3	4	5	6	7	8	9	10	11
1.	—										
2.	.15**	—									
3.	.69**	.22**	—								
4.	—	—	—	—							
5.	.56**	.21**	.46**	.45**	—						
6.	.72**	.19**	.54**	.68**	.48**	—					
7.	.41**	.23**	.32**	.43**	.28**	.48**	—				
8.	.54**	.02	.41**	.48**	.43**	.49**	.30**	—			
9.	.39**	.02	.23*	.32**	.36**	.36**	.37**	.39**	—		
10.	-.26**	-.06	-.20**	-.24**	-.19**	-.17**	-.12**	-.24**	-.19**	—	
11.	-.36**	-.10*	-.24**	-.28**	-.46**	-.21**	-.08*	-.18**	-.19**	.11**	—

* $p < .05$, ** $p < .01$

Note. Coefficient alphas for data in Study 2 are included in parentheses after each scale below:

1. Ability Doubts (.85); 2. Importance of Ability (.75); 3. Avoidance Orientation (.86); 4. Self-Worth Protection-Total Score (.89); 5. Revised Academic Self-Handicapping (.83); 6. Clance Impostor Phenomenon (.91); 7. Fear of Negative Evaluation (.90); 8. Causal Uncertainty (.85); 9. Global Self-Esteem Uncertainty (.88); 10. Confidence in Ability (.93); 11. Academic Self-Esteem (.84)

analysis, the best approach is to form a total score based on a generalised tendency toward self-worth protection.

The reliability of the subscales and total score of the SWPS is demonstrated at a high level on the basis of both test-retest reliability and internal consistency as determined by Cronbach's alpha. Not only is there a consistency of responses among the items that form each subscale and the total SWPS score but a consistency of responding over a 2-week delay in Study 2. This indicates that aspects of behaviour assessed by the SWPS are stable in composition over limited time frames.

The Ability Doubts and Avoidance Orientation subscales as well as the total score of the SWPS also appear to have acceptable levels of construct validity. Consistent with Covington and Omelich's (1991) quadripolar model of achievement motivation, these measures were moderately correlated with other failure-avoidant patterns of behaviour such as academic self-handicapping and impostor fears. However, of some concern is the fairly high correlation of the Ability Doubts subscale with the CIPS ($r = .72$ in Study 2) and the total score of the SWP ($r = .68$ in Study 2) with the CIPS. A correlation of this magnitude is somewhat problematic from the point of view of distinguishing between the constructs of self-worth protection and impostor fears. In future revisions of the SWP, there is a need to construct items that differentiate these two failure-avoidant strategies. In contrast, the correlation of the Importance of Ability subscale with another failure-avoidant strategy (the RASH) was fairly low ($r = .21$ in Study 2), albeit significant.

Moderate positive correlations between Ability Doubts and Avoidance Orientation subscales of the SWPS and causal uncertainty reinforce empirical findings of links between uncertainty about the cause of achievement outcomes and self-worth protection (Thompson, 1993; Thompson *et al.*, 1995). These links are consistent with known associations between uncertain self-esteem and attributional uncertainty (e.g., Snyder, 1990). Similarly, links between uncertain self-esteem and self-protective withdrawal of effort are also well documented (e.g., Harris & Snyder, 1986; Marecek & Mettee, 1972; Rhodewalt & Fairfield, 1991).

The moderate, positive correlation between the total score on the SWPS and the FNE is logical given self-worth protective students' sensitivity to situations that evoke evaluative threat (e.g., Craske, 1985, Thompson, 1993; Thompson *et al.*, 1995; Thompson, Bransden, & Dinnel, 2001). Likewise, a moderate negative correlation between self-worth protection and academic self-esteem is consistent with findings by Craske (1985) and Thompson (1993).

This initial attempt at developing a scale to measure the degree to which students endorse self-worth protection strategies has yielded a scale that is reliable and valid. In particular, the Ability Doubts and the Avoidance Orientation subscales as well as the total score are psychometrically strong. Since the SWPS was validated on university students, attention might be given validating with high school and middle school populations.

Pedagogic implications

The present study endorses the key aspects of personality assumed to be central to self-worth protection, these being ability doubts, the salience of ability as a criterion of self-worth, and sensitivity to evaluative threat. As such, a number of implications for classroom teaching can be inferred.

Minimising evaluative threat

On the one hand, a key factor associated with the variable performances of self-worth protective students across occasions is the level of evaluative threat. The understanding, based on experimental studies (e.g., Craske, 1988; Thompson, 1993; Thompson *et al.*, 1995) is that self-worth protective students perform well when poor performance is unlikely to reveal low ability (when evaluative threat is minimal), while performing poorly when poor performance is likely to reveal low ability. As such, it becomes important to minimise evaluative threat in classroom settings.

Evaluative threat is nowhere more readily apparent than in the assessment of student learning through examinations, tests, assignments and the like. For failure-avoidant students, perceptions of self-worth can be maintained or crumple on the basis of performance feedback, assignment by assignment (Thompson, 1994).

While evaluative threat can masquerade as test anxiety, self-worth students are not primarily differentiated from other students on this basis, but on the basis of their sensitivity to evaluative threat (Thompson, 1993, Thompson *et al.*, 1995). Covington (1992) posits that achievement anxiety arises primarily from the disruptive effects of diminished ability perceptions, and hence diminished self-worth rather than from the interfering effects of emotional arousal as such. On this basis, the key concern for self-worth protective students is not so much to reduce test anxiety per se but to reduce the bases of evaluative threat. At the classroom level, this can be achieved by altering the context of learning in a way that minimises uncertainty and the adverse effects of failure at early/critical points in the learning sequence. Reducing evaluative threat in summative and formative assessments is also indicated as a priority, perhaps by way of opportunities for students to resit for tests or in other ways to 'make good': to redeem themselves when they have either performed poorly or believe themselves to have performed poorly. In this way, apprehension over tests and assessments at the end of an instructional sequence is likely to be dissipated.

Reducing an emphasis on ability as a criterion of self-worth

For self-worth protective students, there is generally an unremitting and exaggerated concern over the adequacy of their personal performance (Thompson, 1996). The assumption is that such concerns are premised on the perceived importance of achievement as a criterion of personal worth (e.g., Covington & Omelich, 1979a, 1979b; Harari & Covington, 1981). Normative grading practices exacerbate the performance pressures that derive from the perceived equation between personal worth and ability, allowing few to achieve the highest grades. As high grades can be earned by only a minority of students, they become valued for their scarcity and stand as ready indicators of high ability.

This emphasis on ability as an index of personal worth is evident as cultural values and reflected in aspects of institutional ethos: in prizes, accolades and awards for academic or sporting excellence, and in consequent perceptions of the value and importance of winning. They are evident too in teacher expectations and messages concerning the bases of student valuation. Because of this, these emphases may be difficult to change.

A realisable goal may nevertheless be to encourage alternative and multiple bases of personal valuation, so that students come to realise that academic endeavour is not the sine qua non of personal worth. Advantages in this regard are argued by Linville (1985, 1987), who draws attention to the risks that arise from a self-view that sees self-worth attached to few, as opposed to many, self-aspects. Proneness to depression and anxiety following an experience of defeat or less than adequate performance are associates of a such a simplified self-view. Where a sense of self-worth hinges on several as opposed to a few (or even one) domain of performance or endeavour, the individual has a buffer against negative life events. Such changes need to become incorporated as aspects of institutional ethos, and recommended to students by formal and informal networks of advice and encouragement. In other respects, learning approaches that de-emphasise individualistic, competitive orientations in favour of cooperative learning can be expected to ameliorate the concern over ability status.

Enhancing self-concepts of ability

Early failure – failure that clearly and decisively demonstrates one's incompetence – can have adverse effects on one's self-estimates of ability in the area in question. Experimental studies examining situational variables related to self-handicapping indicate that uncertainty can arise from either non-contingent success feedback or from threats to uncertain self-images. Failure on an initial task, while revealing some negative information about ability, is relatively unlikely to give conclusive evidence that one is incompetent in the field of study in question. When early failure threatens individuals' self-images in this way, without decisively settling the question of competence, self-handicapping is likely to occur. On the other hand, when circumstances are such that the individual has achieved closure concerning his or her lack of ability in the domain of study in question, self-handicapping is relatively less likely to occur. Rhodewalt and Davison (1986) observe that self-handicapping is particularly likely to occur where several conditions exist: (1) where the individual is uncertain about his or her ability status, (2) where there is uncertainty about the cause of the achievement outcome in question, and (3) where there is uncertainty about how failure is to be avoided on a future occasion.

On the strength of these insights, several implications can be drawn for teachers.

Given that failure, at some stage or other, is an inescapable part of achieving mastery, an initial imperative for teachers is to manage the attributional implications of failure. This is probably most easily achieved when one is dealing with tasks that involve a discrete set of procedures that need to be followed to achieve a successful outcome. In such situations, the reasons for an unsuccessful outcome can be anticipated. Anticipating student attributions *prior* to performance – particularly unproductive ones – and replacing them with productive attributions is thus likely to achieve two things: forestalling the likelihood of unproductive attributions, and minimising attributional uncertainty.

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Received 18 December, 2000; revised version received 1 July, 2002