

**Academic Resilience and the Four Cs: Confidence, Control, Composure, and
Commitment**

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Academic Resilience and the Four Cs: Confidence, Control, Composure, and Commitment

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Academic resilience is defined as the ability to effectively deal with setback, stress or pressure in the academic setting. Although there is a large body of research focusing on general or life resilience, there has been little research into the issue of academic resilience. This paper utilises the Student Motivation Wheel (Martin, 2003a, 2003b) as a basis for conceptualising academic resilience and the Student Motivation Scale (SMS – Martin, 2001, 2002) as a basis for measuring it. The study found that academic resilience comprises self-belief (confidence), a sense of control, low anxiety (composure), and persistence (commitment) as assessed through administration of the SMS (that measures each of these four dimensions) to 400 Australian high school students. Implications for pedagogy are discussed.

Resilience

Why are some (often motivated) students debilitated by setbacks, poor performance, stress, and study pressure while others pick themselves up, recover, and move on? Why do some students get caught in a downward spiral of underachievement while others respond proactively to poor performance and break this downward spiral? Why do some students buckle under the pressure of school while others are energised and embrace the challenges before them?

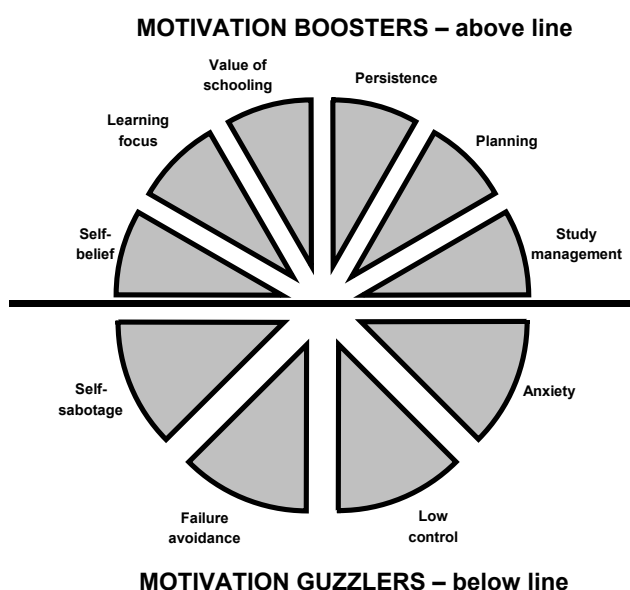
We suggest that the answer lies in academic resilience. In a general sense, resilience has been defined as the process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances (Howard & Johnson, 2000). In the academic context, it is defined as students' ability to deal effectively with academic setbacks, stress, and study pressure. To date, the few studies that deal with academic resilience are focused on ethnic minority groups and extreme underachievers (eg. see Catterall, 1998; Finn & Rock, 1997; Gonzalez & Padilla, 1997; Overstreet & Braun, 1999).

There has, however, been substantial focus on resilience in terms of broader life events (eg. resilience to disadvantaged backgrounds, poor parenting, family break-up, mental illness, drug addiction etc.) in Australia (Fuller, 2000; National Crime Prevention, 1999; Shochet & Osgarby, 1999) and overseas (Davis & Paster, 2000; Gilligan, 1999; Lindstroem, 2001; Luthar & Cicchetti, 2000; Luthar, Cicchetti, & Becker, 2000; Masten, 2001; Slap, 2001). School is an important place where resilience in young people can be enhanced (Cunningham, Brandon, & Frydenberg, 1999; Frydenberg, 1999; Fuller, 2001; Fuller, McGraw, & Goodyear, 1999; Howard & Johnson, 2000; Longaretti, 2001; Parker & Hendy, 2001; Speirs & Martin, 1999). However, studies of resilience as it pertains to school are still couched in terms of a young person's mental health and wellbeing and not in terms of their academic development. This paper explores a model that provides some guidance as to specific factors that underpin academic resilience and how to address them in the classroom context.

The Student Motivation Wheel

Martin (2001, 2002, 2003a, 2003b) has developed a model of motivation – the Student Motivation Wheel – that reflects the thoughts, feelings, and behaviours underpinning academic engagement at school. The model separates motivation into factors that reflect enhanced motivation and those that reflect reduced motivation. These are called *boosters* and *guzzlers* respectively. Figure 1 shows this model and the specific facets of motivation that comprise it. This model is used as a basis for exploring (multidimensional) academic resilience in this study.

Figure 1: The Student Motivation Wheel – Adapted from Martin, A (2003a). How to Motivate Your Child For School and Beyond (Sydney: Bantam)



The Aims of the Present Study

The aims of the present study are multifold. First, it seeks to explore the relative contribution of each facet of the Student Motivation Wheel to students' academic resilience. Second, in identifying specific facets of the Wheel that are related to students' academic resilience, we seek to determine the relative salience of each of these contributors. Finally, we seek to explore various student profiles and the relationship of these profiles to students' academic resilience. Taken together, the study is aimed at exploring in more detail the potential multidimensionality of academic resilience. Identifying specific facets that underpin academic resilience holds important implications for pedagogy because targeted intervention and support is likely to be more effective than global support directed at academic resilience as a global construct (Weisz, Weiss, Han, Granger, & Morton, 1995).

Method

Sample and Procedure

Respondents were 402 high school students (72% girls; 28% boys) in Years 11 and 12 from two schools. Teachers administered the Student Motivation Scale to students during class. The rating scale was first explained and a sample item presented. Students were then asked to

complete the Student Motivation Scale on their own and to return the completed instrument to the teacher at the end of class.

Materials

The Student Motivation Scale (Martin, 2001, 2003b) is an instrument that measures high school students' motivation. It assesses motivation through six boosters and four guzzlers.

Boosters

Self-belief (eg. "If I try hard, I believe I can do my schoolwork well"): Self-belief is students' belief and confidence in their ability to understand or to do well in their schoolwork, to meet challenges they face, and to perform to the best of their ability.

Value of schooling (eg. "Learning at school is important to me"): Value of schooling is how much students believe what they learn at school is useful, important, and relevant to them or to the world in general.

Learning focus (eg. "I feel very pleased with myself when I really understand what I'm taught at school"): Learning focus is being focused on learning, solving problems, and developing skills. The goal of a learning focus is to be the best student one can be.

Planning (eg. "Before I start an assignment I plan out how I am going to do it"): Planning is how much students plan their schoolwork, assignments, and study and how much they keep track of their progress as they are doing them.

Study management (eg. "When I study, I usually study in places where I can concentrate"): Study management refers to the way students use their study time, organise their study timetable, and choose and arrange where they study.

Persistence (eg. "If I can't understand my schoolwork at first, I keep going over it until I understand it"): Persistence is how much students keep trying to work out an answer or to understand a problem even when that problem is difficult or is challenging.

Guzzlers

Low control (eg. "I'm often unsure how I can avoid doing poorly at school"): Students are low in control when they are unsure about how to do well or how to avoid doing poorly.

Self-sabotage (eg. "I sometimes don't study very hard before exams so I have an excuse if I don't do as well as I hoped"): Students self sabotage (or self-handicap) when they do things that reduce their chances of success at school. Examples are putting off doing an assignment or wasting time while they are meant to be doing their schoolwork or studying for an exam.

Failure avoidance (eg. "Often the main reason I work at school is because I don't want to disappoint my parents"): Students have an avoidance focus when the main reason they do their schoolwork is to avoid doing poorly or to avoid being seen to do poorly.

Anxiety (eg. "When exams and assignments are coming up, I worry a lot"): Anxiety has two parts: feeling nervous and worrying. Feeling nervous is the uneasy or sick feeling students get when they think about their schoolwork, assignments, or exams. Worrying is their fear about not doing very well in their schoolwork, assignments, or exams.

Academic Resilience

Academic resilience was assessed through six items as follows:

"I believe I'm mentally tough when it comes to exams"

"I don't let study stress get on top of me"

"I'm good at bouncing back from a poor mark in my schoolwork"

"I think I'm good at dealing with schoolwork pressures"

"I don't let a bad mark affect my confidence"

"I'm good at dealing with setbacks at school (eg. bad mark, negative feedback on my work)"

Measurement and Statistical Analysis

Four items measure each facet of the Student Motivation Wheel and six items measured academic resilience. To each item, students rated themselves on a scale of 1 ('Strongly Disagree') to 7 ('Strongly Agree'). Each student's answers to the items on each motivation area and academic resilience were then aggregated and converted to a score out of 100. Hence, each student was assigned ten scores out of 100. If a student answered less than one third of the instrument, he or she was dropped from further analyses. If a student answered less than three items in a subscale, he or she did not receive a score for that subscale. Data were analysed using SPSS for Windows. Statistical analyses included factor analysis, tests of internal consistency (reliability), Pearson product moment correlations, multiple regression, hierarchical cluster analysis, and one-way ANOVA.

Results

Psychometrics

Before assigning scores to students on each of the subscales, it was important to establish that the subscales represent distinct factors that are each reliable. Accordingly, factor analysis was first conducted on the items. This entailed Principal Axis Factoring with oblique rotation (because factors were expected to be correlated) identifying ten factors. This factor structure explained 68.4% of the variance. Factor loadings are shown in Table 1. Only loadings greater than .30 are presented. Also shown in Table 1 are reliability (Cronbach's alphas) coefficients for each subscale. Taken together, there is a clear factor structure consistent with that proposed by the Student Motivation Wheel and each factor is reliable.

Table 1: Factor loadings (>.30) and Cronbach's α for the Student Motivation Scale

	Self belief (SB)	Value school (VS)	Learning focus (LF)	Plan (PLN)	Study manage (SM)	Persist (P)	Anxiety (ANX)	Low control (LC)	Failure Avoid (FA)	Self- sabotage (SS)
SB1	.51									
SB2	.47									
SB3	.45									
SB4	.49									
VS1		.57								
VS2		.56								
VS3		.65								
VS4		.52								
LF1			.66							
LF2			.55							
LF3			.68							
LF4			.67							
PLN1				.69						
PLN2				.50						
PLN3				.57						
PLN4				.71						
SM1					.67					
SM2				.35	.44					
SM3					.64					
SM4					.53					
P1						.71				
P2						.60				
P3						.59				
P4						.73				
ANX1							.76			
ANX2							.58			
ANX3							.60			
ANX4							.77			
LC1								.74		
LC2								.40		
LC3								.78		
LC4								.55		
AV1									.80	
AV2									.85	
AV3									.60	
AV4									.64	
SS1										.67
SS2										.89
SS3										.75
SS4										.72
α	.79	.81	.79	.83	.85	.84	.82	.82	.82	.85

On the basis of these strong psychometrics, ten subscale scores were calculated through deriving the mean of each of its component items – thus generating ten subscale scores consistent with each facet of the Student Motivation Wheel. Academic resilience was also

reliable (Cronbach's $\alpha = .89$) and its component items were aggregated to form a mean subscale score as well.

Correlations Between Facets of the Wheel and Academic Resilience

The first phase of analyses involved correlations between facets of the Student Motivation Wheel and academic resilience. Correlations appear in Table 2. Of the boosters, self-belief and persistence are most strongly related to academic resilience. Of the guzzlers, anxiety, failure avoidance, and low control are most strongly related to it.

Table 2: Correlations with academic resilience

	Academic Resilience	
	r	p
BOOSTERS		
Self-belief	.33	<.001
Learning focus	.12	.014
Value of school	.13	.012
Planning	.17	.001
Study manage	.13	.009
Persistence	.24	<.001
GUZZLERS		
Anxiety	-.66	<.001
Low control	-.53	<.001
Failure avoid	-.36	<.001
Self-sabotage	-.23	<.001

Salient Predictors of Academic Resilience

It was then of interest to determine the extent to which these relatively more salient correlates predicted academic resilience. Multiple linear regression was used to explore this, with self-belief, persistence, low control, failure avoidance, and anxiety entered simultaneously into the regression equation as predictors of academic resilience. Findings are presented in Table 3.

Table 3: Multiple linear regression predicting academic resilience

	Standardised β	t	p
Self-belief	.19	4.78	<0.001
Low control	-.12	2.72	<0.01
Anxiety	-.60	14.86	<0.001
Persistence	.13	3.29	<0.001
Failure avoidance	<.01	.025	.98

The set of predictors explained a substantial proportion of the variance in academic resilience (Multiple R = .75, $p < 0.001$). Anxiety was clearly the strongest predictor, followed by self-belief, persistence, and control. Failure avoidance did not explain significant levels of variance in the equation. It seems, then, that after controlling for the presence of other factors in the model, self-belief, control, low anxiety, and persistence are the best predictors of academic resilience.

Profiling Students and Relating These Profiles to Academic Resilience

The next phase of analysis involved identifying cluster groupings of students based on their scores on self-belief, control, anxiety, and persistence. Hierarchical cluster analysis was performed using a distance measure (squared Euclidean distance) and Ward's method of clustering – recommended to avoid 'chaining' of observations found in linkage methods and to minimise the within-cluster differences (Hair, Anderson, Tatham, & Black 1994). Determination of cluster numbers was carried out by inspecting increases in the agglomeration (clustering) coefficients (see Hair et al., 1994). To identify large relative increases in cluster homogeneity, the percentage change was calculated for ten to two clusters. These increases are shown in Table 4 along with coefficients for each cluster. Ideally, a parsimonious solution is sought that identifies a manageable number of clusters. The largest percentage increase was observed when moving from four to three clusters and so the four cluster solution was selected as the most ideal to reflect the four facets of the Student Motivation Wheel.

Table 4: Agglomeration coefficients for last ten clusters and percentage increases

Number of clusters	Agglomeration coefficient	% change in coefficient to next level
10	117327	7%
9	125869	7%
8	135262	8%
7	146662	8%
6	158386	10%
5	173554	13%
4	196465	24%
3	242759	24%
2	300935	31%
1	394289	-

The next phase of data analysis involved interpreting the four clusters. To do this, clusters were profiled in terms of mean scores on each of the four subscales and then graphed according to group representation. This graph is shown in Figure 2 and interpretations of these clusters are in Table 5.

Figure 2: Mean scores for each cluster grouping

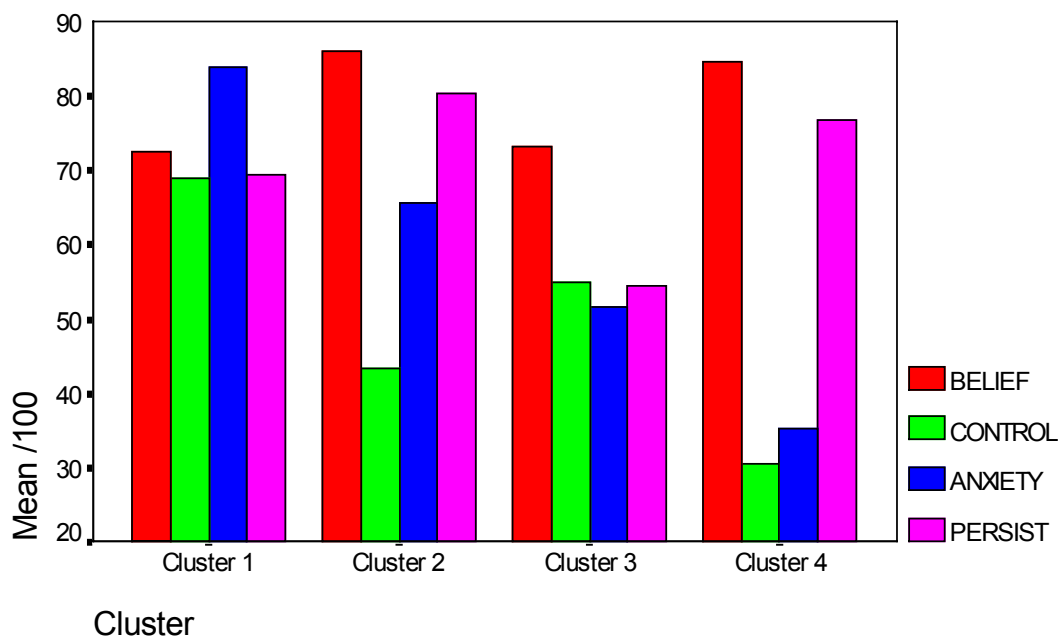


Table 5: Cluster profiles

	Self-belief	Control	Anxiety	Persistence	Acad Resil Mean
Cluster 1 (n=73)	Low	Low	High	Medium	47.1
Cluster 2 (n=205)	High	High	High	High	68.1
Cluster 3 (n=58)	Low	Medium	Low	Low	66.6
Cluster 4 (n=66)	High	High	Low	High	80.0

These findings show that Group 4 is high in self-belief, control, persistence and low in anxiety. It is this group that is hypothesised to be academically resilient. Group 2 also scores high on the three boosters but scores high on anxiety too. This group is hypothesised to score lower on academic resilience than Group 4. Groups 1 and 3 reflect a mix of low boosters and high guzzlers and so are hypothesized to be lower in academic resilience than Groups 4 and 2.

These hypotheses were tested using one-way ANOVA using cluster membership as the independent variable and academic resilience as the dependent variable. As hypothesised, there were significant differences between groups on the mean academic resilience score, $F(3,398)=77.2, p<0.001$. Post hoc follow-up tests using Student Newman Keuls showed that Group 4 was significantly higher in academic resilience than all other groups, Group 2 was significantly higher in academic resilience than Group 1, as was Group 3.

Discussion

The data showed that four factors predict academic resilience: self-belief, control, low anxiety, and persistence. Essentially, then, academic resilience is proposed to be underpinned by Four Cs: confidence (self-belief), control, composure (low anxiety), and commitment (persistence). Cluster analysis of these factors identified four cluster profiles which were differentiated on the basis of their scores on academic resilience. Cluster analysis confirmed findings derived in the regression analyses, namely that students high in self-belief, control, persistence and low in anxiety are more academically resilient. The multidimensionality of academic resilience holds implications for pedagogy because identifying specific facets of academic resilience enables more targeted intervention and support. This is likely to be more effective than global support directed at academic resilience as a global construct (Weisz, Weiss, Han, Granger, & Morton, 1995). Accordingly, there are specific strategies educators can use to enhance students' self-belief, control, and persistence and to reduce their anxiety. These are briefly discussed below.

Increasing Students' Self-belief

Students' experience of success increases their self-belief. Specifically, developing students' self-belief involves restructuring learning so as to maximise opportunities for success (Martin & Marsh, 2003). Ways to structure learning along these lines include breaking schoolwork into components so that students can experience small successes along the way and perhaps individualising tasks so that challenges match students' capacities (McInerney, 2000). To build students' self-belief it is important to also challenge their negative thinking. This involves encouraging students to challenge their negative thinking through (a) observing their automatic thoughts when they receive a mark or are assigned schoolwork, (b) looking for the evidence that challenges their negative thinking habits, and (c) challenging these thoughts with this evidence (Beck, 1976; Meichenbaum, 1974).

Enhancing Students' Control

Ways to build students' sense of control include showing them how hard work and effective study strategies impact on achievement, reviewing study skills in class, and giving students some choice over lesson objectives, assessment tasks, criteria for marking, and due dates for assignments (McInerney, 2000). Other ways to build control involve providing feedback that makes it very clear how students can improve (Craven, Marsh, & Debus, 1991; Martin, Marsh, & Debus, 2001a, 2001b, 2003). It also requires teachers to administer rewards that are directly contingent on what students do – often inconsistent reward contingencies create confusion and uncertainty in students' minds as to what they did to receive that reward (Thompson, 1994).

Increasing Students' Persistence

A large part of enhancing students' persistence involves promoting a focus on mastery (Nicholls, 1989; Qin, Johnson, & Johnson, 1995). In practical terms, this is achieved by showing students how effort and strategy are important ways to improve (Craven et al., 1991; Martin et al., 2001b), encouraging students to set goals and showing them how to work towards these, making it clear to students how to break schoolwork into components, plan how to do each component, how to review their progress, and overcome obstacles they may experience in working towards their goals (McInerney, 2000).

Reducing Students' Anxiety

It is often the case that fear of failure underpins students' anxiety (Covington, 1992). Ways to reduce fear of failure at a class level include promoting a classroom climate of cooperation, self-improvement, and personal bests (Qin et al., 1995), showing that mistakes can be a springboard for success and do not reflect on students' worth as a person, and repositioning success so that it is seen more in terms of personal progress and improvement than outperforming others (Covington, 1992). Specific ways to reduce students' test anxiety include practice tests, encouraging effective study and planning, developing test-taking skills, encouraging checking/monitoring strategies, and relaxation techniques leading up to the day of the test.

Conclusion

Academic resilience is the ability to effectively deal with setback, stress or pressure in the academic setting. To date, there has been little research into the issue of academic resilience nor the specific factors that underpin it. This study found that academic resilience comprises self-belief (confidence), a sense of control, low anxiety (composure), and persistence (commitment). The fact that academic resilience is underpinned by specific dimensions holds implications for pedagogy. Specifically, enhancing students' self-belief, control, and persistence and reducing their anxiety are key means to enhance students' capacity to deal more effectively with setback, stress, and pressure at school.

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