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## **Challenges to student engagement and school effectiveness indicators**

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### **Abstract**

School systems are increasingly required to report on a range of predetermined indicators designed to measure aspects of student engagement and school effectiveness. However the utility and validity of indicators that form part of the public accountability of schools is rarely questioned. In Victoria, Australia, student perceptions of school engagement (i.e., sense of connection to school, teachers and peers), motivation to learn, self-esteem, and student safety are part of a range of public accountability indicators. This study examined differences between two cohorts of Year 9 female students from socioeconomically low ( $n_1 = 99$ ) and high ( $n_2 = 97$ ) resourced schools on a number of these accountability indicators. Contrary to expectations, no significant differences were found between low and high resourced schools on student engagement measures or measures of motivation to learn or self-esteem. The only significant finding was that females from the high-resourced school reported higher levels of student safety (i.e., fewer bullying behaviours) than females from the low-resourced school. The findings from this study raise questions about the suitability of these indicators as measures of student engagement and school effectiveness.

### **Introduction**

In the education arena, school systems across the world are increasingly accountable to the public to provide information pertaining to school performance so that school effectiveness can be compared against external criteria or benchmarks. To this end, school systems have developed a range of mandatory indicators variously covering both psychosocial and academic domains. Schools are expected to collect relevant data on predetermined domains and report the findings of such data at regular intervals to education bodies and the community at large. The findings from the various data sources are also expected to form the basis for future school planning and improvement. In other words, the overall goal is to use the data from these mandatory indicators to inform whole school improvement.

Performance indicators routinely collected in Victorian secondary schools at the student level include a range of objective and subject measures that measure academic achievement, and behavioural and wellbeing outcomes. Examples of indicators of academic achievement include the state-wide Achievement Improvement Monitor (AIM) test results in English and Mathematics at Year 7, teacher reported

levels of the Curriculum and Standards Frameworks (CSF), Victorian Certificate of Education ENTER scores, and percentage of completions of the Victorian Certificate of Applied Learning (VCAL). Objective behavioural indicators include measures such as number of student absences and student retention rates. Subjective indicators are usually measured through questionnaires and include student responses to the “Feelings about Yourself and School - Social Questionnaire for Secondary Students (FAYAS; D.E.E.T. Victoria, 2000), a survey that results in six measures namely, student connectedness to their peers, teachers and school, motivation to learn, self-esteem and student safety (or absence of bullying behaviours). The constructs captured in the FAYAS survey form the focus of the current study.

## **Literature review**

A number of studies have highlighted the significant role that psychosocial factors, and particularly those that are associated with students’ school engagement, play in the learning process. School engagement has both a behavioural and an emotional component, and these may be considered respectively as participation and identification (Finn, 1993). However, school engagement has been primarily measured by observable behaviours directly related to academic effort and achievement (Sinclair, Christenson, Evelo, & Hurley, 1998). Indicators of engagement that emerge relatively consistently across the literature include participation in school-related activities, achievement of high grades, amount of time spent on homework, and rate of homework completion. Beyond these traditionally investigated measures of school engagement, definitions of engagement also include affective and cognitive elements (e.g., perceptions of the connectedness to school, teachers and peers, motivation to learn, self-esteem, and student safety).

A positive school environment plays a significant part in determining students’ sense of belonging and satisfaction (Osterman, 2000). Schools are communities and it is important that students perceive themselves as members of this learning environment. Researches have emphasized the link between students’ perceptions of school and their motivation, achievement, and behaviour. It is expected that students who feel connected with school are more motivated to achieve academically and less motivated to engage in anti-social behaviour than students who feel disconnected from it. In an extensive study in the United States of America involving over 12,000 9<sup>th</sup>- to 12<sup>th</sup>- grade adolescents, Resnick et al. (1997) concluded that school connectedness factors such as engagement in school activities, feeling part of the school, and feeling teachers treated students fairly, were protective against nearly every health risk behaviour (e.g., emotional distress, delinquency, teenage pregnancy).

When students perceive their teachers as supportive, disruptive behaviour decreases and students’ perceptions of successful interactions with their teachers increases (Ryan & Patrick, 2001). Perceived support from teachers was an independent and positive predictor of interest in classes, pursuit of goals and adherence to classroom rules and norms (Wentzel, 1998). The quality of student-teacher relationships was positively associated with student academic motivation and attitudes toward school (Eccles, Wigfield, Midgley, MacIver, & Feldlaufer, 1993). In addition, Roeser, Midgley and Urda (1996) found that students’ school achievement was directly associated with student ratings of teacher-student relationships. Wentzel

(1997) concluded that the teacher-student relationship was a critical factor that motivates middle-school students to engage in the academic and social activities of the classroom.

Students' perceptions of connectedness to peers also seem to impact significantly on school achievement. The literature examining the influence of peers on school engagement can be outlined from three perspectives. Firstly, social-emotional factors such as the quality of peer relationships, social competence and socially responsive behaviours impact academic success (Furlong et al., 2003). Peer acceptance indirectly increases the level of students' interest in school and directly affects students' emotional well-being (Wentzel, 1991). Secondly, it was believed that perceived support and perceptions of peer academic values influence academic motivation and success. Thirdly, peer groups and social networks are also significantly related to school achievement (Furlong et al., 2003). More particularly, Wentzel, McNamara, Barry and Caldwell (2004) demonstrated that young adolescents who had friends at school showed higher levels of academic achievement and prosocial behaviours, and less emotional distress than students without reciprocated friendships.

The positive relationship between self-esteem and school achievement has been well documented (Harter, 1988). Harter commented that if a student achieves an acceptable level of accomplishment and if this achievement is important to him or her and is likewise valued by significant others in his or her life (e.g., teachers, peers), then the student will develop positive self-esteem. This positive self-esteem makes students feel good about themselves and leads to motivation to do well in school. High levels of achievement help maintain high levels of self-esteem (Marsh, 1990).

Student safety, or the absence of feeling the victim of bullying, is associated with characteristics of the school environment. In other words, the degree to which a student is bullied may be related to their sense of connectedness to their school, teachers, and peers. A supportive social network is a protective factor against the negative peer interactions of being bullied. Bullying increases when social networks are minimal and of poor quality, and decreases when social networks are better established (Pellegrini & Bartini, 2000). Skues, Cunningham and Pokharel (2005) found that students who were bullied by their peers at school tended to report lower levels of self-esteem, feel less connected to their peers, teachers, and school, and were less motivated to perform well at school.

Overall, students' perceptions of themselves and their school environment appear to influence their academic performance and engagement in school. Students who feel more connected to their school are more motivated to achieve and have higher academic expectations. Through genuine relationships between students and teachers, students can be supported and encouraged by their teachers when teachers communicate their beliefs in students' abilities to succeed in school. Self-esteem flourishes in schools in which students feel that they belong to an important group and in which individual membership is recognized and acknowledged. When students share common values and purposes and feel a sense of ownership of the school itself and its programs, then students are more likely to be engaged in the social and learning objectives that their schools have to offer (Ladestro, 1990).

## **The current study**

The aim of the study is to compare the outcomes on the FAYAS (DEET, 2000) of female responses from two schools whose academic performance as captured by previously published VCE ENTER scores consistently rank in the top ten percent or bottom twenty percent of schools in the state of Victoria. Based on geographic location, physical surroundings and level of compulsory student fees, the high performing school may be deemed to be a high resourced school while the low performing school could be deemed a low resourced school. Given the previous associations reported between academic achievement and school engagement factors, it was hypothesized that students from the high performing academic school would report, on average, higher levels of peer, teacher and school connectedness, as well as higher levels of self-esteem, motivation to learn and student safety.

## **Method**

### *Participants*

The participants consisted of 99 Year 9 female students from a coeducational regional state government high school who ranged in age from 13 to 17 years ( $M = 14.9$ ,  $SD = 0.66$ ) and 97 Year 9 female students from an independent metropolitan girls school who ranged in age from 13 to 15 years ( $M = 14.3$ ,  $SD = 0.49$ ). While 10 percent of participants in the high resourced school came from Asian backgrounds, the remaining participants from both schools were mostly from Anglo-Saxon backgrounds. For the high resourced school, students' self-reports of socio-demographic factors showed that 78.7 percent of their mothers/guardians were in paid employment with 58.3 percent in occupations that required tertiary qualifications. In addition, 96.8 percent of fathers/guardians in paid employment with 61.7 percent in occupations that would require a tertiary qualification. In contrast, students from the low-resourced school reported that 72.6 percent of their mothers/guardians were in paid employed with 58.6 percent in occupations that did not require tertiary qualifications. Equally, 87.8 percent of fathers/guardians were in paid employment with 59.6 percent in trade-based occupations.

### *Instruments*

The Feelings about Yourself and School - Social Questionnaire for Secondary Students (FAYAS, DEET, 2000) is a 26-item questionnaire that measures students' perceptions about themselves and their school environment. The FAYAS was designed to examine the degree to which schools are meeting their social goals as reflected in how students perceive their school experiences and to monitor student engagement. The questionnaire comprises 6 scales namely measures of three school connectedness factors (i.e., students' perceptions of connectedness to peers, teachers and school), self-esteem, academic motivation and perceptions of student safety (i.e., the absence of bullying). Each scale is made up of from 4 to 6 statements.

Students were required to reflect on how well each statement matched their perceptions of their school experience. Students then respond on a 5-point Likert-type scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree by putting a circle around the score at or somewhere between the two extremes. Four questions related to students' perceptions of their relationships with their peers such as "I get on

well with others at my school". Students' perceptions of their teachers (e.g., that they are fairly treated and that their contributions are noticed and acknowledged by teachers) were assessed with 5 questions such as "I like my teachers this year" and students' feelings of connectedness to the school were assessed with 4 questions including "Learning in my school is fun". The self-esteem measure included 5 questions to examine the value that students' place on themselves (e.g., "on the whole, I am satisfied with myself"). Motivation to learn was assessed with 4 questions such as "I am keen to do extremely well at my school". Students' perceptions of safety were assessed with 4 questions relating to bullying behaviours such as "I have not been bullied at my school recently". These latter items were reversed prior to forming scale scores. Scale totals were formed by summing the items pertaining to the scale so that higher scores on any scale indicated more of the particular characteristic under consideration.

For the secondary school samples originally surveyed (DEET, 2000) Cronbach's alpha internal consistency reliabilities ranged from 0.76 to 0.88. In the present study, Cronbach's alpha was 0.76 for connectedness to peers, 0.84 for connectedness to teachers, 0.85 for connectedness to school, 0.89 for self-esteem, 0.79 for motivation to learn and 0.78 for student safety.

### *Procedure*

Explanatory letters and consent forms requesting permission for students to complete questionnaires pertaining to the study were sent to all parents/guardians of female year 9 students from two student cohorts. The overall response rate was 62.6%. All participants subsequently gave their assent prior to commencing the questionnaires. Administration of the questionnaire to class groups of students took place within normal school hours and was supervised by a class teacher who was known to the students. The maximum time required to complete the questionnaire was 15 minutes.

## **Results**

Prior to analysis, data were screened for missing values, accuracy of data entry, possible response sets, outliers and normality (Tabachnick & Fidell, 1996). No evidence of response bias was found. In total, there were 12 missing values, with no more than 2 missing values for any single respondent. Of the missing values, the number of missing values for any respondent did not exceed 3. In this preliminary exploration, missing values were replaced with the nearest mean integer value for that item.

Table 1 presents the intercorrelations amongst the student engagement variables captured by the FAYAS questionnaire for students from the high and low resourced school. With the exception of the correlation between student safety and motivation to learn for the low resourced school and student safety and self-esteem for the high resourced school, all remaining correlations as expected were positive. In fact, the student safety measure had generally weak correlations with all other variables except for connectedness to peers where the correlation was moderately strong. Moderate correlations were also found between school and teacher

**Table 1**  
*Correlations between school connectedness factors, self esteem, motivation to learn and student safety for low- and high- resourced samples*

Indicators	Connectedness - peers	Connectedness - teachers	Connectedness - school	Self esteem	Motivation to Learn	Student Safety
Connectedness - peers	-	0.32	0.37	0.36	0.30	0.68
Connectedness - teachers	0.39	-	0.65	0.58	0.32	0.29
Connectedness - school	0.46	0.71	-	0.60	0.47	0.24
Self esteem	0.48	0.36	0.39	-	0.37	0.17 <sup>ns</sup>
Motivation to Learn	0.28	0.49	0.58	0.46	-	0.27
Student Safety	0.55	0.23	0.22	0.25	0.15 <sup>ns</sup>	-

*Note.* Correlations for the low-resourced school presented below the diagonal and for the high-resourced school presented above the diagonal

<sup>ns</sup> Correlation not significant at the 0.01 level (2-tailed).

connectedness for both schools. The largest difference in the magnitude of correlations was found for connectedness to teachers and motivation to learn (.49 and .32 for low and high resourced schools respectively).

Table 2 displays the means and standard deviations for low and high resourced schools on the school engagement factors as well as the *F*-ratios and *p* values from post-hoc univariate analyses. A one-way independent groups multivariate analysis of variance (MANOVA) comparing female students from low and high resourced schools was conducted with the scores obtained on the six subscales of the FAYAS (DEET, 2000) as dependent variables. Both multivariate and univariate assumptions of homogeneity of variance were upheld, as indicated by a non-significant Box's *M* ( $p < 0.001$ ) and Levene's test of homogeneity for all variables of interest. The MANOVA indicated a significant difference between the two student groups

**Table 2**  
*Means and standard deviations of connectedness factors, self-esteem, motivation to learn and student safety for low and high resourced school*

Variable	Low resourced school		High resourced school		<i>F</i> (1, 194)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Connectedness to peers	15.88	3.02	16.16	2.96	0.45	0.50
Connectedness to teachers	15.85	4.16	16.74	4.43	2.12	0.15
Connectedness to school culture	11.95	3.22	12.16	3.92	0.18	0.67
Self-esteem	14.70	3.33	14.13	3.58	1.30	0.26
Motivation to learn	14.49	4.50	16.36	3.60	0.87	0.35
Student safety	16.62	3.32	17.03	2.90	10.25	0.00



on the combination of dependent variables,  $Wilks \Lambda = 0.91$ ,  $F(6,189) = 2.93$ ,  $p < .05$ ,  $partial \eta^2 = 0.09$ . Contrary to expectations, results from the univariate analyses found no significant differences in the reported perceptions of connectedness to peers, connectedness to teachers, connectedness to school, self-esteem or motivation to learn. In fact, the only significant difference between the groups was for student safety. When compared to the low-resourced students, scores for the high-resourced students were significantly higher for perceptions of school safety (i.e., absence of bullying), although the strength of the effect was small ( $partial \eta^2 = 0.05$ ).

## Discussion

This study examined student perceptions of peer, teacher and school connectedness, motivation to learn, self-esteem, and student safety within the context of Year 9 female students from socioeconomically low and high resourced schools. While these factors more mostly positively and significantly associated with each other, the surprising finding was that the two groups of students differed only in their perceptions of student safety and this difference was small. Contrary to expectations, students from both schools did not differ in their self-reported perceptions of connectedness to their peers, teachers and schools or in their self-reported perceptions of self-esteem or motivation to learn.

Given the associations found in previous studies between measures of school engagement (e.g., connectedness to peers, teachers, school, motivation to learn) and school achievement (e.g., Eccles et al., 1993; Roeser et al., 1996; Wentzel, 1991) the findings in this study are surprising. Students from the high resourced school consistently outperform students from the low resourced school on externally set measures of student achievement and particularly VCE outcomes and associated university ENTER scores. One possible explanation for the lack of significant differences on these factors between the two schools could be that the measure used to deter these factors is not very sensitive to contextual factors such as socioeconomic factors. Self-reports are also very subjective instruments in which comparisons tend to be made relative to the environment with which one is familiar. In fact, future studies are warranted that determine the degree of association between these subjective factors and objective measures of student engagement based on classroom observations and the like. Equally, it might be assumed that students from the high resourced school have higher parental and self aspirations and expectations when compared to those from the low resourced school and hence responses to a self-report questionnaire on items of student motivation and engagement are likely to be tempered by these possible differences in aspirations and expectations. However, a more plausible explanation is that the consistent finding of strong associations between measures of socioeconomic status (e.g., parental educational attainment, employment and occupational status) and school achievement (Marks, McMillan & Hillman, 2001) overrides the influence of any of the more subjective measures of perceptions of self and connectedness to factors in the school environment.

In Victoria, the degree to which schools are functioning well and meeting the needs of their students is reflected in how students perceive their school experience. Students' perceptions of the sense of connection to school, teachers and peers, motivation to learn, self-esteem, and student safety are often considered to be important indicators of an effective school. Irrespective of the possible reasons for the

lack of differences on factors of school engagement found in this study, the study raises some interesting questions in relation to the use of measures such as the FAYAS as indicators for school improvement. According to a recent circular sent out from the Department of Education and Training (DE&T, 2005), the purpose of data obtained from the FAYAS is “to assist schools in gaining an understanding of students’ perceptions and experience of school” so that schools can (1) monitor levels of student engagement, especially in the middle years, (2) compare their outcomes to statewide benchmarks, (3) use their results to stimulate discussion within the school community about how to improve engagement, and (4) assist in the identification of areas for improvement and professional development needs in the school (DE&T, 2005). If these measures are unambiguous and warrant a positive school perception if scores are high then such strategies might also be warranted when scores are low. However, the current study suggests that the scores obtained on the FAYAS may have little to do with eventual VCE academic outcomes and such a goal is surely a primary goal of all schools.

If schools are to benefit from indicators that are mandated by the state or that are selected by schools themselves, a few additional considerations are worthy of note. Currently such indicators are aggregated at the school year level and no adjustment is made to the indicators on the basis of previous measures of the same or similar constructs. Firstly, it is imperative that, as a minimum, the unit of analysis should be based on class level data. As such, data would be controlled for contextual and other extraneous factors and schools could then place some confidence that significant differences found between class groups may indicate areas for improvement or further investigation of why some class groups outperform other class groups within the same school environment. Secondly, the goal of school improvement is to improve outcomes relative to some previously established starting point. As such, school based class benchmarks need to be initially determined so that indicators are interpreted relative to these benchmarks (i.e., cohorts tracked over time). In other words, schools must be provided with the means to undertake a value-added analysis of their data over time if data are truly to drive whole school improvement.

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