Students' Engagement by Age and Gender:
A Cross-Sectional Study in Malaysia

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Abstract: The aim of the study is to explore students' engagement level at schools based on gender and age in Malaysia. Student's engagement is a fashionable term to describe the degree of their engagement in classroom learning. Students' engagement has three main components, namely affective, behavior and cognitive using cross-sectional approach. The study sample comprising of students who were 12, 14 and 16 years old was selected randomly. The instrument employed in this study is an adapted version of Students' Engagement Inventory by Lam Shui Fong [1]. The result of pilot test shows that the instrument has a high reliability index of 0.85 Cronbach Alpha. Findings of the study reveals that engagement level in school differs by age and gender. Younger students recorded higher school engagement level as compared to elder ones. Female students reported to have higher level of engagement when compared to boys. This shows that school environment is perceived differently by different age groups and genders. As students grow older, they find that school activity is less interesting or fail to cater for their growth need. It is suggested that school administrators and teachers plan for a more conducive atmosphere and meaningful learning activities. Different age groups and genders among students need to be addressed differently to create a better learning environment in accordance with their emotional, psychological and cognitive development. In a developing country such as Malaysia, Students' engagement in school activities is a major factor in determining students' success in education, hence, the teachers need to undergo teacher training courses to obtain the necessary skill to dynamically engage students in classroom activities.

Key words: Cross-Sectional Students' School Engagement · Affective · Cognitive · Behavior

INTRODUCTION

Previous researches have focused on key factors such as socio-economic status, intelligence, motivation, learning and perceptual styles which may contribute to students' achievement [2]. However, recent research has initiated to explore other factors that have indirect impact on academic performance. One area of interest is students' engagement in school activities and classroom learning task. Students 'engagement is also an indicator of successful classroom interaction [3-5].

The term students' 'engagement' has evolved from a desirable students' trait in relation to engagement in curriculum design and participation in building school climate. It also embraces a wider range of learning activities including participating in extra-curricular programs. Skinner and Belmont [6] define engagement as positive learning behaviors and emotions during learning, while Chapman [7] describes students' engagement as students' willingness to take part in school activities such as attending classes, doing homework and obeying teacher's instruction in class.

According to Malaysian Education Act 550 [8], it is mandatory that all Malaysian citizens between the ages of 6 and 18 years must attend formal education. After 11 years of study, those who excel will continue their study at public or private universities of higher education. Since Malaysian education system is centralized and rewards only those who excel in public examination, most parents try to ensure that their children go to school regularly and

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even pay for extra tuition after school. Attending school or tuition centre is one thing, but to willingly participate and perform learning activities all the time is not an easy task especially for adolescents. They face three main challenges: (1) acquiring knowledge and skills in curriculum, (2) adapting to physical development and hormonal change and (3) learning and performing role of an adult.

Adolescence is a period of storm and stress for some adolescents due to vigorous body development and hormonal changes. They experience changes physically and emotionally. This bodily change is also accompanied by challenges to adapt a new role and challenge known as psycho-social development. Erickson [9] proposed eight stages of human psychological development. He postulates that social interactions as well as the other important factors have strong influence on one's ability to overcome challenges at certain stage or period of life cycle. During school period, there are two important stages (industry versus inferiority and identity versus role-confusion).

In the industry versus inferiority stage, school children learn the meaning of sweet success and the bitterness of failure, while during identity versus role-confusion adolescents try to emulate portraying themselves according to their idols. It is during this critical period that psychological support and understanding is important. Teachers then have a role to help students undergo this turbulence period by giving support and guiding them. Students need to feel welcomed, understood and be appreciated to engage themselves with school activities and learning tasks. Engagement in learning and high motivation have also consistently been associated with the reduction in the rate of dropouts and increased levels of students' success [10-12].

Indicators of School Engagement: Students who are engaged with the school show some contrasting observable behaviors as compared to those who are disaffected students [6, 13]. They claimed that disaffected students are passive, disappointed, bored with school and classroom atmosphere, depressed, anxious and even rebellious towards authorities, teachers and classmates. In another study by Kenney *et al*. [4], they found that level of academic challenge, active and collaborative learning, interaction with faculty members, educational experience and positive learning environment indicate students' engagement in college.

Fletcher [14] found that instructors can enhance students' engagement by motivating them to be more active participants by collaborative planning, evaluation and decision making. In the other words, if students are to be more engaged they must be actively involved in educational setting and their opinions are welcome and appreciated. Other studies have shown that autonomous school environment will make students more engaged in school and classroom works [15]. Relationship between students and adults in schools and between students and peers is also a critical factor. Likewise, Reyes *et al*. [10] highlighted the important role of classroom-based, emotion-related interactions and engagement to promote academic achievement. In a related study, Legewie, & DiPrete [16] reported the role of gender in students' achievement. However, while the importance of students' engagements in school activities have been highlighted by many studies, literature has evidenced very few studies, if any, on the engagement level at schools based on gender and age of students. Thus, this research study is undertaken to address this issue.

The Objectives of the Study: This study aims to find out whether demographic factors such gender and age have an impact on students' engagement (affective, behaviour & cognitive) at school. Figure 1.1 depicts age and gender as the independent variables, while affective, behavior and cognitive engagement are regarded as dependent variables.

Figure 1.1 represents the study's conceptual framework illustrating cross-sectional study based on gender through the ages of 12, 14 and 16, regarding the three main constructs including: 1) Affective Engagement that consists of motivation and feelings of students about school and classroom activities, 2) Behavior Engagement that consists of habits and skills performed by students regarding school and classroom activities and 3) Cognitive Engagement that consists of beliefs and values towards school and learning activities.

Methodology
Sampling: The sample is composed of students from both rural and urban schools. The criterion of selecting the schools follows the bench mark set by Malaysian ministry of education. A stratified random sampling procedure was selected for this study. The sample of the study involved 836 students from three different age groups and school categories. The purpose of choosing the sample based on
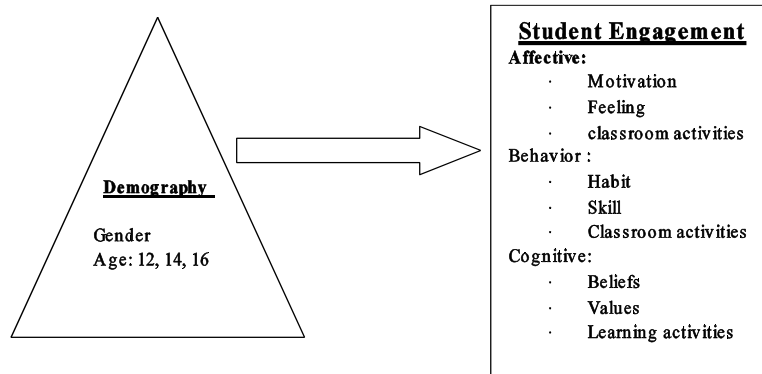
Fig. 1.1: Conceptual Framework of Study

Table 3.1: Sample Distribution by Year of Study and Gender

Gender/Age	12 years	14 years	16 years	Total
Male	150	111	152	413
Female	141	130	152	423
N	291	241	304	836

gender, age and school location was to accomplish the cross-sectional study. Table 3.1 shows the number of sample based on years of study by gender.

Research Instrument: Students 'engagement in school was measured using an adapted version of Students' engagement Inventory. The questionnaires consist of two parts. Part one is related to demographic information, while part two deals with students' engagement constructs including affective, behavior and cognitive. Affective construct was measured by using nine items, while cognitive and behavior constructs were measured by 12 items. Before distributing the questionnaires among the main sample, a pilot study was conducted with 30 students from two schools in Malaysia. A value of 0.85 Cronbach Alpha was computed showing that the questionnaire has a high reliability index and thus suitable for the study.

Data Analysis: Descriptive and inferential statistics were used to analyze the obtained data by using questionnaire. Multiple Analysis of Variance (MANOVA) was used to examine the difference between boys and girls in terms of affective, cognitive and behavior domains in school engagement.

RESULTS AND DISCUSSION

Students' Engagement in School: Result shows that regarding affective domain of male (mean =4.35 & SD = 0.43) and female students (mean = 4.51 & SD = 0.39), students in year 6 have higher means as
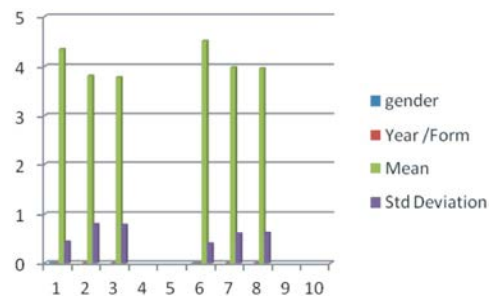

Fig. 1: Affective Engagement Histogram

Table 4.1: Affective Engagement Level by Gender and Age

Engagement construct	Gender	Year /Form	N	Mean	Std Deviation
Affective	Male	year 6	150	4.35	0.43
		Form 2	111	3.81	0.79
		Form 4	152	3.78	0.78
		Overall	413	4.00	0.73
	Female	year 6	141	4.51	0.39
		Form 2	130	3.98	0.59
		Form 4	152	3.96	0.61
		Overall	423	4.15	0.60

compared to those in form 2 and form 4 respectively, as given in Table 4.1. Overall results also showed that female students obtained higher mean score (mean = 4.15 & SD= 0.60) than the male students (mean = 4.0 & SD = 0.73). This means that female students are more emotionally engaged in school activities and learning task than the male students. Results also reveal that students' affective engagement decreases as they grow older concerning both genders, as given in Figure 1. Rudasi *et al*. [17] [13] pointed to "the importance of understanding how children's temperament and classroom emotional support may work together to promote or inhibit children's academic achievement". The finding of the current study is consistent with the result of study by Lam *et al*. [18] in which they reported
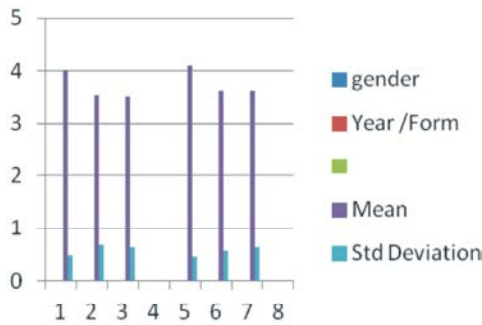
Fig. 4.2: Behavior Engagement Histogram

Fig. 4.3: Cognitive Engagement Histogram

Table 2: Behavior Engagement Level by Gender and Age Category

Gender	Year /Form	N	Mean	Std Deviation
Male	year 6	150	4.02	0.49
	Form 2	111	3.54	0.66
	Form 4	152	3.51	0.63
	Overall	413	3.70	0.64
Female	year 6	141	4.11	0.46
	Form 2	130	3.61	0.55
	Form 4	152	3.61	0.62
	Total	423	3.77	0.60

that compared to boys, at lower levels, girls had higher levels of engagement in school. Wang and Eccles [6, 19] argues: "It is plausible that school belonging has no direct association with academic achievement and that its association operates indirectly through the effects of behavioral or cognitive engagement".

The current study presents additional support for the teachers' role in relation to students' emotional development. Students, especially at low levels, shape close attachments as they are exposed to caregivers, such as teachers invested emotionally in them [10:709]. Supportive, Caring and emotionally available teachers can have students feeling a sense of belonging and consequently get emotionally attached as well as engaged in the process of learning [20, 10]. Such emotional attachments between students and the teachers are critical to their psychosocial adjustment and correspondingly predict competencies in their later life [21]. In contrary, when students become emotionally unresponsive to learning environments, consequently they feel disconnected from the school and their engagement in school activities declines. Accordingly, academic performance dwindles.

Table 2 and Figure 4.2 illustrate behavior engagement level among the students. As in affective level, the same results was also obtained in relation to behavior engagement construct. Male students who aged 6 have the highest mean (mean = 4.02 & SD = 0.49) as compared
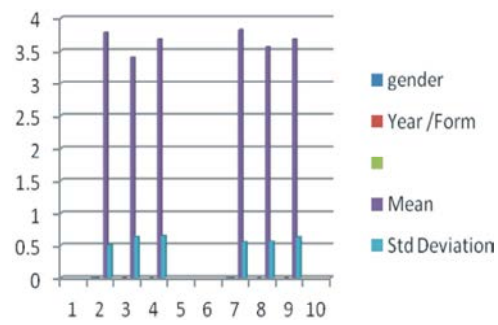
to those in form 2 (mean = 3.54 & SD = 0.66) and form 4 (mean = 3.51 & SD = 0.63). Female students in the age of 6 who show (mean = 4.11 & SD = 0.46) also record higher mean as compared to their elder sisters in form 2 (mean = 3.61 & SD = 0.55) and form 4 (mean = 3.61 & SD = 0.62). Overall, results also point out that female students obtained higher mean score (mean= 3.77 & SD = 0.60) as compared to male students (mean = 3.70 & SD = 0.64). This behavior of girls may be associated with their relationships with the teacher. In accordance with the gender role socialization perspective, normally girls might benefit more from close ties with the teacher since closeness is in line with the greater intimacy along with affiliation in social relationships which are expected of girls [22]. Hughes *et al*. [23] reported that as teacher use of performance goal practices augmented and students' behavioral engagement declined, while as students moved into classrooms with a new teacher with less emphasis on performance goal practices, they become more behaviorally engaged in school. They also found that gender did not moderate these results contradicting with the finding of the current study. Nevertheless, in a study by Xu [24], boys reported statistically significant lower scores in homework interest compared to girls. Thus, teacher should look for ways to make the class atmosphere attractive for students' of both genders where they do not find classroom activities as taxation.

Sample of Cognitive Engagement Level: Regarding cognitive engagement construct, interesting results were found. Students in form 2 for both genders showed lower mean as compared to those in year 6 and form 4. However, level of cognitive engagement is still very high when students are in year 6 for both genders. This means that during form 2 at the age of 14 students seem to have less engagement in school and learning activities, as given in Table 4.3 and Figure 4.3. Data shows that when students grow older, their participation in class activity cognitively

Table 4.3: Mean Distribution of Cognitive Engagement Level by Gender and Age

Gender	Year /Form	N	Mean	Std Deviation
Male	year 6	150	3.78	0.50
	Form 2	111	3.40	0.62
	Form 4	152	3.68	0.64
	Total	413	3.64	0.61
Female	year 6	141	3.82	0.54
	Form 2	130	3.56	0.55
	Form 4	152	3.68	0.62
	Total	423	3.69	0.58

declines. The result also discloses that female students tend to engage in class activities more than male students. However, Wang *et al*. [25] reported that boys and girls did not substantially differ in terms of classroom engagement. Chiu *et al*. [26] studied immigrant students' emotional and cognitive engagement at school and found that native students had weaker attitudes toward school (cognitive engagement) but greater sense of belonging at school (emotional engagement) than immigrant students. They also claimed that students with better teacher–student relationships, teacher support or a classroom disciplinary climate often had a greater sense of belonging at school and consequently had better attitudes toward school than other students. Therefore, teacher-student relationship can enhance students' engagement in the classroom activities.

Students 'Engagement Difference Based on Gender and Age: A two-way between-groups multivariate analysis of variance (MANOVA) was performed to investigate gender and age differences concerning students' engagement. Three independent variables, namely affective, behavior and cognitive engagement were used. The independent variables were gender and age. There was significant difference between males and females in relation to affective (F = 15.61 & sig = 0.000 (p<0.05) and behavior engagement level (F = 4.51 & sig = 0.03 (p<0.05). However, there was no significant difference between males and female students in terms of cognitive engagement level (F = 2.28 & sig = 0.13 (p>0.05). Result also shows that there was a significant difference in affective, behavior and cognitive engagement level between students of different age groups (F = 75.58 & sig.= 0.00 (p<0.05), (F = 70.73 & sig = 0.00(p<0.05) and (F = 20.29 & sig = 0.00 (p>0.05) consecutively. Furthermore, analysis also shows there was no interaction effect between gender and age among the sample in terms of affective, behavior and cognitive level of engagement in school.

Boys and girls at the age of 12, for example, can be considered as the 'seniors' at primary school. They are the eldest in the school and receive a lot of attention as they will be sitting for the UPSR exam. Past researches have shown that there was a positive effect on students who receive support and maintain healthy relationship with adults. Therefore, the teachers are supposed to be trained to learn how to give attention to all the students regardless of their genders or ages [2, 26-28]. Regarding gender, in a study by Ruslin [29], it was found that female and male students have different learning styles. Female students pay more attention to learning by being attentive, actively taking part in learning, whereas male students prefer to study on their own and are less dependent on lecturers [30].

Wang and Eccles reported "As students experienced sharper declines in school participation and self-regulated learning, there were corresponding declines in grade point average (GPA) over time. Similarly, the declines in school participation, school belonging and use of self-regulatory strategies predict corresponding declines in educational aspiration" [19:36].

Therefore, a teacher should engage students of various age groups using appropriate and attracting activities while taking into account their gender as well.

Implication and Recommendation: All over the industrialized world, female students have accomplished dramatic gains in terms of educational attainment and outperformed boys in different education fields. However, the under-performance of male students and their inclination to interrupt the learning process has been sparking intense academic and public debates regarding the causes of what scholars now call the "problem with boys." [16, 31]. Bearing this fact in mind, this study focused on students' engagement by age and gender.

The findings of this study has several pedagogical and educational implications. **First,** as in some countries (such as Malaysia) normal school hours take around 6-7 hours per day with most of the time students sitting and listening to instruction, only those who are eager to study will find schooling interesting enough to keep them fully occupied in school. Thus, the teachers should know how to take advantage of various approaches to fulfil students' needs and stimulate their interests based on gender and age group.

Second, normally, at low levels, the male students will take part more attentively in school activities specially in learning academically leading to higher education. However, as students grow older, they find that school activity is less interesting or fail to address their growing

needs. It is recommended that school administrators and teachers plan for a more conducive atmosphere as well as meaningful learning activities. Different age groups and genders among students need to be addressed differently to build a better learning environment in line with their emotional, psychological and cognitive development.

Third, the study finding revealed that male students become less engaged in class activities as they grow older with a faster pace. It may be associated with the fact that males respond particularly positively to an academic orientation amongst their peers which could negatively affect their performance. Nevertheless, while school administrators and ministry of education could decide to invest more resources in the schools, they should focus on training better teachers. Because teachers directly affect the academic atmosphere of the school and accordingly raise academic performance.

Forth, as the education curriculum plays a pivotal role in encouraging and engaging students in school activities, it is suggested that the curriculum designers consider gender discrepancy as well as students' age group at different level of education correspondingly.

Last but not least, prior research findings and the result of the current study suggest that more explicit and deliberate forms of emotion expertise training for school teachers in the form of pre-service or/and in-service training may result in greater student engagement, enhanced student performance and less teacher burnout [31,10]. Therefore, authentic instruction cannot happen unless teachers purposely attend to the social as well as emotional aspects of learning. The findings of this study also shows that academic success, to a degree, is contingent on the emotional components of learning and motivation. Hence, these findings imply teacher training and development in terms of affective and emotional aspect.

Therefore, in a developing country such as Malaysia, where school engagement is regarded as a major factor in determining students' success in education, the ministry of education should do more investment in this arena and hold teacher training courses for teachers and thereby upgrade them by introducing them to the latest teaching achievements and technologies. Accordingly, the teachers will be prepared to address the issue of students' engagement in classroom activities considering the factors of age and gender.

CONCLUSION

This study aimed to find out the level of students 'engagement based on gender and age. Result of this study show that boys and girls differ in terms of affective, cognitive and behavior engagement toward school activities. Students show a decrease in theses aspects as they grow older. This may be due to the increase in activities and engagement outside the school. Adolescents may find that schooling is less interesting as compared to those at school. The finding reflects that Malaysian school boys and girls differ in terms of feeling, thinking and behaving towards school activities. Therefore, there is a need to revamp traditional practice of learning activities as well as classroom management. Future study may duplicate in the other countries to make a comparison in terms of students' school engagement based on age and gender.

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