



# Single-sex “*Pesantren*” schools: Unravelling girls’ and boys’ peer connections and their impacts on wellbeing and learning outcomes.

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## ABSTRACT

This study investigates the intricacies of single-sex education in *Pesantren*/ Indonesian Islamic boarding schools by examining student social interactions and their impacts on wellbeing and learning outcomes. Using a two-stage-stratified sample of 547 students in single-sex classrooms, notable disparities were revealed through Independent sample *t*-tests. Boys displayed lower academic achievement and higher incidences of verbal and cyberbullying compared to girls. Multigroup Path analysis emphasized the greater impacts of peer belonging and bullying on girls’ wellbeing and learning outcomes in contrast to boys. Within male classrooms, differences in happiness and learning motivation based on age were observed, indicating heightened positive emotions and enthusiasm for learning among younger male students. The study uncovered intricate relationships between wellbeing and learning attitudes in both groups, highlighting their interconnected nature. These findings underscore the importance of fostering collaborative, supportive, and tailored educational environments in single-gender settings to effectively address gender-specific challenges and promote effective learning.

## 1. Introduction

The recognition of social connections among students within particular educational environments, such as single-sex education has grown significantly due to its substantial influence on student outcomes (Brutsaert & Van Houtte, 2002; Hughes, 2006). The assertion is backed by extensive research conducted across various school settings which consistently underscores the pivotal role that student social interactions play in shaping their emotional wellbeing, learning process and overall academic performance (Cunningham, Pokharell & Skues, 2005; Huang, 2020; Leung et al., 2021; OECD, 2019b; Tetzner & Becker, 2019). These connections, including peer belonging and victimization, contribute profoundly to student happiness, optimism, and engagement with their learning activities fostering a conducive environment and enriching educational experience for their academic achievement. For this reason, this comprehensive research undertakes a detailed examination of student social interactions and their consequential effects on wellbeing domains and learning outcomes within the distinctive context of single-sex classes in the *Pesantren* as the realm’s cultural and religious heritage for Indonesian education. Within the framework of these traditional Islamic boarding schools, the study investigates the multifaceted relationships that develop within single-sex educational settings and their profound implications on student wellbeing and learning development. By immersing into the unique social life among the students, deeply rooted cultural influences, and distinct pedagogical approaches prevalent in *Pesantren*, this research aims to offer comprehensive insights into the intricate interplay between

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student social connections, wellbeing, learning attitudes and educational achievements. The detailed knowledge gained from this investigation aims to shed light on the intricacies of single-sex education in Indonesia. The findings of this study offer insights poised to wield a transformative impact on educational policy and practices and promote an all-inclusive environment that nurtures student growth and success within single-gender educational contexts, both locally and across the globe.

### 1.1. Indonesian “Pesantren” and single-sex education

In Indonesia, the educational system boasts a rich tapestry of *Pesantren* or Islamic boarding schools, serving as foundations of the nation's cultural and religious heritage. In the 1910s, *Pesantren* was established by Kyai Wahab Hasbullah, the leader of Muhammadiyah, Indonesia's largest modernist Islamic organization and Kyai Wahid Hasyim as the leader of the Nahdlatul Ulama (Nurish, 2010). The key role of *Pesantren* education revolves around instilling a comprehensive understanding of Islamic teachings while providing a holistic educational experience. Likewise, *Pesantren* caters to the academic and spiritual growth of the Muslim students emphasizing focal points for inclusive education, fostering ethical principles and cultural heritage, encouraging community engagement, and commonly employing gender-segregated learning (Raihani, 2012). In the early stages of their establishment, most Islamic boarding schools were primarily designed and structured to cater exclusively to male students which focused solely on preparing young men to become Islamic leaders and meeting the needs of boys' roles within the community. In 1921, as these *Pesantren* continued to evolve and develop, there arose a growing recognition of the need for educational opportunities tailored to young women to provide equitable access to religious teachings and general knowledge for both genders (Muazza, Ningsih, Wijayanti, Putra & Samsudin, 2018).

*Pesantren* gradually began offering educational opportunities that catered to the needs of Islamic boys and girls. This transformation reflects the evolving nature of *Pesantren*, to a more inclusive approach that embraces both Muslim male and female students, contributing to a more balanced and equitable educational environment within these Islamic boarding schools through classroom separation (Muazza et al., 2018). The enduring practice of class segregation between males and females, also recognized as the single-sex education (SSE) model, remains a basis in *Pesantren*, predominantly due to their staunch adherence to the Islamic teaching of *Fiqh*. Embedded within these Islamic educational institutions, these principles of *Fiqh* serve as the cornerstone dictating educational practices and norms. They achieve this by regulating and limiting social interactions between male and female students, effectively mitigating prohibited behaviours following Islamic teachings and cultural rules (Nurish, 2010). Likewise, the single-sex education model in *Pesantren* represents a deliberate approach aimed at providing an education system that respects cultural and religious beliefs, thereby creating an environment deemed appropriate for effective religious instruction. Rooted in Islamic principles, the segregation of classrooms by sex within *Pesantren* aligns with the teachings of modesty and gender segregation advocated in Islam. By creating distinct learning spaces for boys and girls, *Pesantren* aims to cultivate an atmosphere where students can immerse themselves in religious studies without the distractions or interactions that may challenge their adherence to Islamic teachings and ethics (Jalaluddin, 2022).

Moreover, the benefits of class separation by gender, as exemplified in *Pesantren*, extend to fostering stronger social connections and enhancing learning outcomes, as supported by empirical studies conducted in single-sex educational settings. A comparative study by Brutsaert and Van Houtte (2002) comparing single-sex and coeducational schools highlighted significant differences between these educational models. Their research underscored that student in single-gender schools exhibited better integration within the school community, leading to improved academic performance compared to their counterparts in coeducational settings. This assertion finds reinforcement in research by Hughes (2006), suggesting that students in single-sex schools felt more at ease and self-assured in establishing deep friendships and connections among peers of the same gender. This school setting encourages bonding based on shared experiences and common interests, unencumbered by the complexities that often arise in mixed-gender interactions. The absence of male students during the learning process prompted greater cooperation among girls, positively impacting their learning outcomes (Jalaluddin, 2022). Conversely, Hubbard and Datnow (2005) revealed that in the absence of female students, males were less inclined to seek attention or engage in behaviours to impress girls, resulting in a more focused and concentrated approach to learning. Collectively, these studies contribute compelling evidence aligned with the other studies supporting the idea that single-sex education can nurture stronger social connections (Patterson & Pahlke, 2011), and protect against peer harassment, such as bullying (Johnson & Gastic, 2014), to create more conducive learning environments and better learning outcomes. Nevertheless, there remains a dearth of comparative research specifically conducted within single-sex education environments, particularly in Islamic boarding school settings.

### 1.2. Peer connections and its relations with wellbeing and learning

The profound impact of social connections, specifically the sense of belonging among students, on their educational achievements has been extensively documented. In a comprehensive report by the Organization for Economic Cooperation and Development (OECD, 2019b), the notion of peer belonging, encapsulating the feeling of being embraced, included, and integrated by one's peers, emerges as a significantly influential factor linked to learning performance. The OECD report underscores a strong correlation between a sense of peer belonging and improved academic outcomes, emphasizing the benefits derived when students share a collective and robust sense of connection with their peers. The assertion that a strong sense of connectedness among students yields benefits is consistently supported by scholarly research across various educational levels and geographical contexts, offering a clear picture of the multifaceted advantages such connectedness brings. For example, studies have shown that in environments where a strong sense of belonging is fostered, students not only achieve superior academic performance but also experience heightened levels of well-being

and develop more positive attitudes towards learning. This trend is evidenced by research from around the globe, including findings by [Leung et al. \(2021\)](#) in Hong Kong, which highlighted increased levels of happiness among students with strong peer connections, and research by [Tetzner and Becker \(2019\)](#) in Germany, which found that these connections fostered a sense of optimism among young learners. Furthermore, [Pedler, Willis and Nieuwoudt \(2022\)](#) observed that university students with good peer relationships exhibited heightened motivation to learn. These positive emotions elicited by a sense of connectedness significantly influence students' learning experiences, directly contributing to improved academic outcomes. The enduring and universally recognized benefits of a strong sense of connectedness among students from primary education to higher education settings across countries underscore the necessity of integrating strategies to foster these relationships into educational practices. The consistent findings over time highlight the timeless value of connectedness in enhancing student wellbeing and academic outcomes, emphasizing its role as a fundamental element of effective education.

On the contrary, students experiencing less connectedness with their peers often encounter heightened bullying experiences in school, which significantly impacts their academic performance negatively as likewise noted in the study by [OECD \(2019b\)](#). Numerous studies across the globe have consistently underscored the profound and detrimental effects of bullying on student wellbeing and academic success, painting a distressing picture of its impact across different educational stages and cultural contexts. For instance, [Aunampai, Widyastari, Chuanwan and Katewongsa \(2022\)](#) conducted their research on primary school students in Thailand and discovered a direct correlation between higher instances of bullying and significantly decreased levels of happiness among the victims. This finding is not isolated; similar studies, such as the one by [Turunen, Poskiparta and Salmivalli \(2017\)](#), have documented the academic struggles faced by young students in Finland as a direct consequence of bullying. In the United States, [Huang \(2020\)](#) identified a strong association between bullying and increased levels of school-related anxiety among adolescents, further highlighting the pervasive nature of the negative impact of bullying. In Indonesia, [Rahmawati, Hartinah and Ilya \(2021\)](#) observed a marked decline in students' motivation to learn, attributing this trend to the emotional toll exacted by bullying experiences. These studies collectively reveal that bullying inflicts significant emotional distress on victims, characterized by feelings of fear, sadness, and hopelessness, which severely undermine their ability to participate actively and engage fully in the learning process. As a result, bullied students are often less likely to realize their full academic potential. Echoing these contemporary findings, earlier research by [Cunningham et al. \(2005\)](#), which involved 975 high school students in Australia, highlighted that students who experienced bullying reported lower self-esteem, felt a diminished sense of belonging among their peers, and showed reduced motivation to excel academically within their school environments. By understanding the consistency of negative impact of bullying across various educational levels and contexts, as well as recognizing the persistent nature of these issues over time, educators, policymakers, and communities can better formulate strategies to create safer and more supportive learning environments for all students.

### 1.3. Gender breaks on peer connections, wellbeing and learning

While existing research has emphasized the pivotal role of student social connections in both learning and wellbeing, it concurrently posits that male and female students often diverge in their bonding experiences with peers. This assertion regarding gender disparities in feelings of belonging and encounters with bullying among students finds support in various studies across school levels and contexts. [Sjöman, Granlund, Axelsson, Almqvist and Danielsson \(2021\)](#) and [Leung et al. \(2021\)](#) highlight that young female students in Sweden and Hong Kong, respectively, tend to benefit more from a strong sense of belonging compared to their male counterparts. This contrasts with findings from [Aunampai et al. \(2022\)](#), which point to a higher incidence of bullying among young Thai boys than girls in primary schools, indicating that gender plays a crucial role in shaping students' social experiences and their consequences. Further exploration into how student gender affects psychological wellbeing has revealed distinct variations. [Leung et al. \(2021\)](#) found that girls generally report higher levels of enjoyment in their educational environments, whereas boys tend to exhibit more optimism and enthusiasm towards life. These differences extend to academic aspects as well; for instance, research from Singapore by [Yeung, Lau and Nie \(2011\)](#) indicates that girls demonstrate higher levels of motivation and achievement at the primary school level. Conversely, a study by [Abu-Rabia \(2004\)](#) in Israel suggests that boys experience lower levels of anxiety related to learning compared to girls.

Contrary to earlier assertions regarding the significant role of gender in influencing student connections, recent investigations have shed light on conflicting evidence, emphasizing the importance of factors such as student age, which challenge these gender-focused narratives. Statistical analyses from research conducted by [Sánchez, Colón and Esparza \(2005\)](#) and [Cunningham et al. \(2005\)](#) have unearthed substantial differences between adult and young students, both male and female, in their experiences of peer belonging and bullying. These studies suggest that contrary to prior beliefs, both genders exhibit similar levels of peer belonging and are equally exposed to bullying, indicating that the impact of gender may not be as pronounced as previously thought. Further, research highlights the significant influence of student age on peer connections. [Wentzel, Jablansky and Scalise \(2021\)](#) pointed out that younger students tend to experience stronger peer acceptance, suggesting a more inclusive environment among younger cohorts. On the other hand, findings by [Aunampai et al. \(2022\)](#) and [Cunningham et al. \(2005\)](#) indicate that older students are comparatively less exposed to bullying than their younger counterparts. The evolution of this narrative over time and across school levels and regions suggests a dynamic interplay between gender, age, and social experiences in educational settings. While earlier research predominantly focused on gender as a critical factor in determining students' social experiences, more recent studies advocate for a broader perspective that

incorporates age as a pivotal influence. This shift not only challenges previous assertions but also encourages a more nuanced understanding of the factors that contribute to students' sense of belonging, wellbeing, and academic success. By acknowledging the complexity of these interactions, further exploration into these multifaceted relationships between boys and girls within specific school contexts is paramount, aiding in the development of comprehensive and inclusive strategies tailored to support students' academic growth across diverse educational settings.

## 2. Research questions

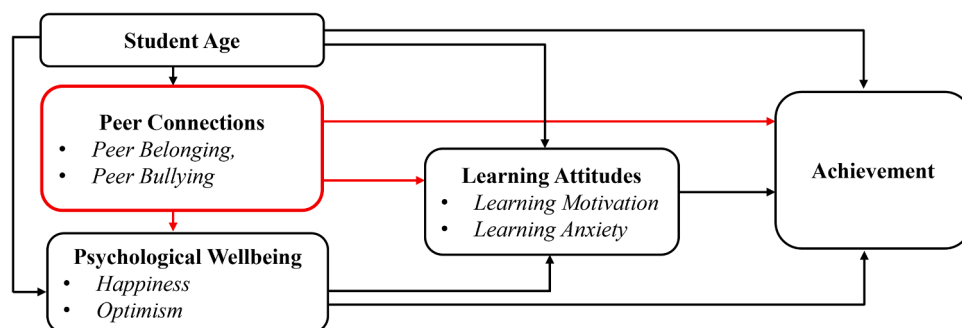
The preceding discussion highlighted the acknowledged disparities between male and female students in peer relationships, wellbeing, learning attitudes, and academic performance within various educational settings, including single-sex schools. However, there remains a notable scarcity of studies that directly compare and assess the actual gaps and effects of student-peer connections between male and female classrooms within *Pesantren*, Islamic boarding schools. This dearth of empirical investigation prompts the formulation of key research questions:

- 1) What are the disparities in peer connections, encompassing peer belonging and bullying, as well as differences in wellbeing (such as happiness and optimism), learning attitudes (like motivation and anxiety), and learning achievements between male and female classrooms within Islamic schools?
- 2) How do females' and males' peer belonging and bullying experiences influence their wellbeing, learning attitudes, and performances differently? What are the interrelationships among the variables?

To navigate these research problems, the study proposes an outlined conceptual framework based on existing literature to illustrate the anticipated relationships among the measured variables. Additionally, it endeavours to employ statistical comparisons and exploratory analyses to delve into the impacts of peer connections, including peer belonging and bullying, on happiness, optimism, learning anxiety, motivation, and academic achievement within both female and male groups, aiming to uncover the interrelationships among these variables. This comprehensive approach aims to address the identified research gaps and offer valuable insights into the nuanced dynamics of student-peer connections, wellbeing, learning attitudes, and academic performance within single-gender educational settings at *Pesantren*, thereby contributing to a more holistic understanding of these crucial aspects in educational environments.

## 3. Conceptual framework

The theoretical foundations outlined in the previous section have culminated in the formulation of Fig. 1, illustrating a proposed framework detailing the potential impacts of various predictors on student achievement. This model, applicable to both Female (FG) and Male (MG) groups, primarily elucidates how student peer connections, encompassing factors like peer belonging and occurrences of bullying, may exert direct and indirect influences on their overall wellbeing, learning attitudes, and subsequent academic outcomes, albeit in distinct ways for each gender group. Student age serves as an exogenous (independent) variable, unaffected by other predictors, yet anticipated to wield significant influence on other interconnected variables. The realms of psychological wellbeing, comprising metrics such as student happiness and levels of optimism, are posited to shape their learning attitudes and eventual achievement. Moreover, student motivation and the presence of learning-related anxiety are envisaged as directly impacting learning outcomes. The variable of achievement itself is identified as an endogenous (dependent) variable, subject to potential direct and indirect effects stemming from exogenous predictors. Notably, the intricate interplay between student social interactions, wellbeing, and learning attitudes is scrutinized, recognizing their potential mutual influences. Further explanation and in-depth descriptions of the derived variables utilized in this study are expounded upon in the subsequent methods section.



\*This conceptual model applied for Female and Male groups

Fig. 1. Conceptual Framework.

## 4. Methodology

### 4.1. Participant

In this study, a two-stage-stratified sample design was employed to ensure a comprehensive and representative sample of Indonesian students. The total sample size consisted of 547 year-12 students, aged between 15 and 19 years, attending Islamic boarding schools. Of these, 358 were girls, representing 65 % of the sample, and 189 were boys, accounting for 35 %. The sampling process involved grouping students into similar categories, specifically female (FG) and male (MG) groups, and then randomly selecting participants from these distinct strata. The initial stage focused on selecting 12 regions based on the presence of Islamic boarding schools ( $n = 12$ ) which have separate male and female classrooms. Subsequently, students were chosen from 27 single-gender classes within these sampled schools. This stratification process was vital as it allowed for the accurate representation of subgroups within the population. By ensuring the inclusion of diverse groups, this method significantly enhanced the precision and representativeness of the sample. Moreover, this meticulous approach facilitated in-depth analysis of specific demographic segments, leading to robust and reliable research outcomes. The utilization of this sophisticated sampling technique, as described by [Cohen, Manion and Morrison \(2002\)](#), underscores the study's commitment to methodological rigor and the production of meaningful findings.

### 4.2. Data collection and measures

This study utilized questionnaires and achievement tests to gather the data. A structured questionnaire was designed to gather specific information and provide valuable insights regarding the students' peer connections, wellbeing and learning attitudes, while achievement tests were used to assess the student's proficiency in the subject matter under investigation. The survey questionnaire consisted of several questions including student demographics, such as student age, peer interaction, wellbeing and learning attitudes. The aspects of peer interaction and psychological wellbeing domains were adapted from the Organization for Economic and Co-operation and Development ([OECD, 2017](#)). Peer connection measures the students' feeling of being accepted and valued by their peers (BELONG) as well as their experiences of being bullied, including physical (PSBLY), verbal (VBBLY), social (SCBLY) and cyberbullying (CBBLY), while psychological wellbeing measures the students' happiness (HAPPY) and optimism (OPTIM) with their lives. Simultaneously, student learning attitudes quantify how the students are motivated to learn (LMOT) adapted from [OECD \(2019a\)](#) and how they feel anxious about learning (LANX) adapted from [Hamouda \(2013\)](#).

As documented in [Appendix 1](#), the variable of student age (STAGE), was coded using raw scores and scales as used in the questionnaire. Other scales of peer belonging, wellbeing and learning behaviours, BELONG, HAPPY, OPTIM, LMOT and LANX were measured using a four-point Likert scale ( $1 = \text{strongly disagree}$ ,  $2 = \text{disagree}$ ,  $3 = \text{agree}$ , and  $4 = \text{strongly agree}$ ). The measures of PSBLY, VBBLY, SCBLY, and CBBLY were scaled using  $1 = \text{never}$ ,  $2 = \text{rarely}$ ,  $3 = \text{often}$ , and  $4 = \text{every time}$ . Simultaneously, the achievement tests (ACV), consisting of 20 items were attained from the student scores adopted from standardized tests of the Indonesian Ministry of Education and Culture ([MoEC, 2017](#)). All scales except for the STAGE and peer bullying variables obtained from the questionnaire were validated using confirmatory factor analysis (CFA) with acceptable goodness of fit (GOF, CFI>0.97, TLI>0.94, RMSEA (0.06, WRMR<0.65,  $\lambda^2 > 0.40$ , AVE>0.60) and construct reliability/CR >0.87 as suggested by [Hair, Black, Babin and Anderson \(2014\)](#) ([Appendices 2 and 3](#)). For the achievement test, the acceptable item fit (MNSQ = 0.97–1.0) and item discrimination >0.20 were confirmed as advised by [Bond and Fox \(2013\)](#) ([Appendix 4](#)). The achievement results were validated through Rasch measurement with acceptable item fit (MNSQ = 0.97–1.01) and Item discrimination >0.20) as advised by [Bond and Fox \(2013\)](#). Then, the raw scores were converted into Weighted Likelihood Estimate (WLE) scores. This estimation technique incorporates different weights for observations to obtain more accurate parameter estimates, taking into account the varying reliability or importance of different data points in the analysis ([Warm, 1989](#)).

### 4.3. Data analysis

#### 4.3.1. Descriptive statistics and independent sample t-Test

In the study aimed at understanding the differences in data distribution between female (FG) and male (MG) groups, a series of comparative analyses using SPSS was conducted. Firstly, the descriptive statistics, employing an exploratory method, was performed to compare the central tendencies of the derived variables, between the groups. This method involved summarizing the main features of the data, including measures of central tendency. Then, an independent sample *t*-test, an advanced mean comparison technique, was employed to discern significant differences between the girls and boys. This statistical test is particularly useful when comparing the means of two distinct groups to determine whether their differences are statistically significant. The significance of the mean differences between the FG and MG groups was confirmed based on the calculated *p*-value. A *p*-value less than 0.05 would suggest that there are significant disparities between the groups in those tested ([Pallant, 2016](#)).

#### 4.3.2. Multigroup path analysis

Multigroup path analysis, a specialized method within the realm of structural equation modeling (SEM), was conducted using the Mplus software developed by [Muthén and Muthén \(1998–2017\)](#). This analytical approach enabled researchers to investigate the relationships among variables within multiple groups simultaneously. Several studies ([Cheah, Amaro & Roldán, 2023](#); [Wang & Wang, 2019](#)) widely advocate for this technique, considering it an invaluable tool for conducting comparative group analysis. For example, it facilitates the exploration of both the consistency and variability of these across diverse groups. This analysis also gains a nuanced



understanding of the underlying mechanisms that govern these interactions and draws robust conclusions about the factors that influence specific outcomes or behaviours within different populations. Therefore, the use of multigroup path analysis ensures that cross-group comparisons are not only more reliable but also profoundly meaningful conclusions.

In this study, conducting multigroup path analysis involved several essential stages. Firstly, the researchers identified a model based on the proposed relationships among the variables, as outlined in the conceptual model. This step allowed them to investigate whether the expected connections between the variables existed or not. Secondly, a model evaluation process was employed to determine the model fit. This evaluation was based on standardized coefficients ( $\beta$ ) representing direct effect, with a significance level of  $p < 0.05$ . Then, the goodness of fit (GOF) of the model was assessed. The GOF diagnostics encompass several indices (Wang & Wang, 2019): the ratio of chi-square to its degree of freedom ( $X^2/df$ ) value of  $\leq 3$ , Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI) both exceeding 0.90, Root Mean Square Error of Approximation (RMSEA) at or below 0.08, and Standardized Root Mean Residual (SRMR) values of 0.10 or less. If the values for each index fell within the acceptable range, it indicated a well-fitted model, signifying that the model accurately represented the observed data. Alternatively, if the model did not fit well, it would be rejected, prompting the need for the development of a new theoretical model.

## 5. Findings

Table 1 and Fig. 2 illustrate single-gender classroom differences in various student variables among a sample of 547 Indonesian students, including 358 girls and 189 boys. The tested variables involved student peer belonging, peer bullying (physical, verbal, social, and cyber), happiness, optimism, learning anxiety, motivation and achievement. Remarkably, significant disparities were evident in peer bullying, VBBLY (Verbal Bullying) and CBBLY (Cyberbullying), wherein boys exhibited markedly higher mean scores, indicating a higher incidence of verbal and cyberbullying compared to their female counterparts. Another notable disparity emerges in the realm of achievement (ACV), where girls have consistently attained notably high scores, highlighting a discernible performance discrepancy between boys and girls, with boys demonstrating lower achievement compared to their female counterparts. Additionally, subtle yet noteworthy differences ranging from 0.15 to 0.19 were observed in LMOT (Learning Motivation), OPTIM (Optimism), PSBLY (Physical Bullying), and BELONG (Sense of Belonging). Girls displayed higher scores in LMOT and BELONG, underscoring their high learning motivation and a strong sense of belonging within the school environment. Conversely, boys demonstrated higher levels of optimism and a heightened exposure to physical bullying. However, the study also revealed relatively minor discrepancies (ranging from 0.05 to 0.09) in LANX (Learning Anxiety), HAPPY (Happiness), and SCBLY (Social Bullying), signifying comparable experiences between male and female students in terms of learning challenges, happiness and social bullying encounters.

The results of multigroup path analysis presenting the main outcomes and their predictors in the boy (FG) and girl (FG) groups are documented in Table 2 and Fig. 3. Of the total predictors, three factors—learning problems (LPROB), learning motivation (LMOT), and happiness (HPY)—emerged as direct predictors of student achievement in both the boy and girl groups. A striking observation was the substantial negative impact of learning problems (LPROB) on student achievement. Both in the female group (FG) and male group (MG), the results indicated strong negative effects (FG,  $\beta = -0.64$ ; FG,  $\beta = -0.76$ ). This suggests that girls and boys who faced challenges in the learning process experienced notably poor academic performance. On a positive note, the findings highlighted the constructive influence of learning motivation (LMOT) and happiness (HPY) on student achievement in both groups. The positive estimates of LMOT (FG,  $\beta = 0.13$ ; FG,  $\beta = 0.14$ ) and HPY (FG,  $\beta = 0.13$ ; FG,  $\beta = 0.09$ ) indicate that students who displayed greater interest in learning and those who found joy in their lives tended to achieve better results. Only found in girls, a sense of belonging, denoted by the positive coefficient  $\beta = 0.19$ , emerged as a significant factor positively affecting girls' performance in school. Likewise, this study shows the negative impact of verbal bullying experiences (VBBLY) on girls' academic performance, indicated by the coefficient  $\beta = -0.14$ . The findings underscore that girls have a strong sense of belonging with their peers, they were more likely to engage and perform better at school. In contrast, female students who faced verbal bullying in school encountered hurdles that hindered their learning attainment.

Likewise, the study's findings signpost three variables, namely OPTIM (FG,  $\beta = -0.16$ ; FG,  $\beta = -0.12$ ), HAPPY (FG,  $\beta = -0.33$ ; FG,

**Table 1**  
Results of the Difference of the Variables between the Groups.

Variable			Girl Class (n = 358)		Boy Class (n = 189)		Mean Diff	t	Sig. p-value
			Mean	SD	Mean	SD			
Peer Connections	Physical Bullying	PSBUL	1.89	0.92	2.01	0.93	-0.11	-1.38	0.17
	Verbal Bullying	VBBUL	2.10	1.00	2.35	0.90	-0.26	-2.95	0.00
	Social Bullying	SCBUL	2.23	0.99	2.28	0.97	-0.05	-0.52	0.61
	Cyberbullying	CBBUL	1.72	0.91	1.93	1.06	-0.21	-2.47	0.01
	Sense of Belonging	BELONG	1.76	1.54	1.58	1.57	0.18	1.27	0.21
Wellbeing	Optimism	OPTIM	2.12	1.47	2.27	1.52	-0.15	-1.09	0.28
	Happiness	HAPPY	2.00	1.38	1.95	1.55	0.05	0.36	0.72
Learning Attitudes	Learning Anxiety	LANX	1.57	1.25	1.66	1.33	-0.09	-0.74	0.46
	Learning Motivation	LMOT	2.63	1.42	2.44	1.43	0.19	1.45	0.15
Student Achievement	Achievement	ACV	38.76	14.92	45.19	12.42	-6.43	-5.07	0.00

Note: Average Score (n = 547), ACV (M = 40.98, SD=14.43); LANX (M = 1.60, SD=1.28); LMOT (M = 2.57, SD=1.43); OPT (M = 2.17, SD=1.49); HAPPY (M = 1.98, SD=1.44); PSBLY (M = 1.93, SD=0.92); VBBLY (M = 2.19 (SD=0.98); SCBLY (M = 2.25, SD=0.98); CBBLY (M = 1.79; SD=0.97); BELONG (M = 1.70, SD=1.55).

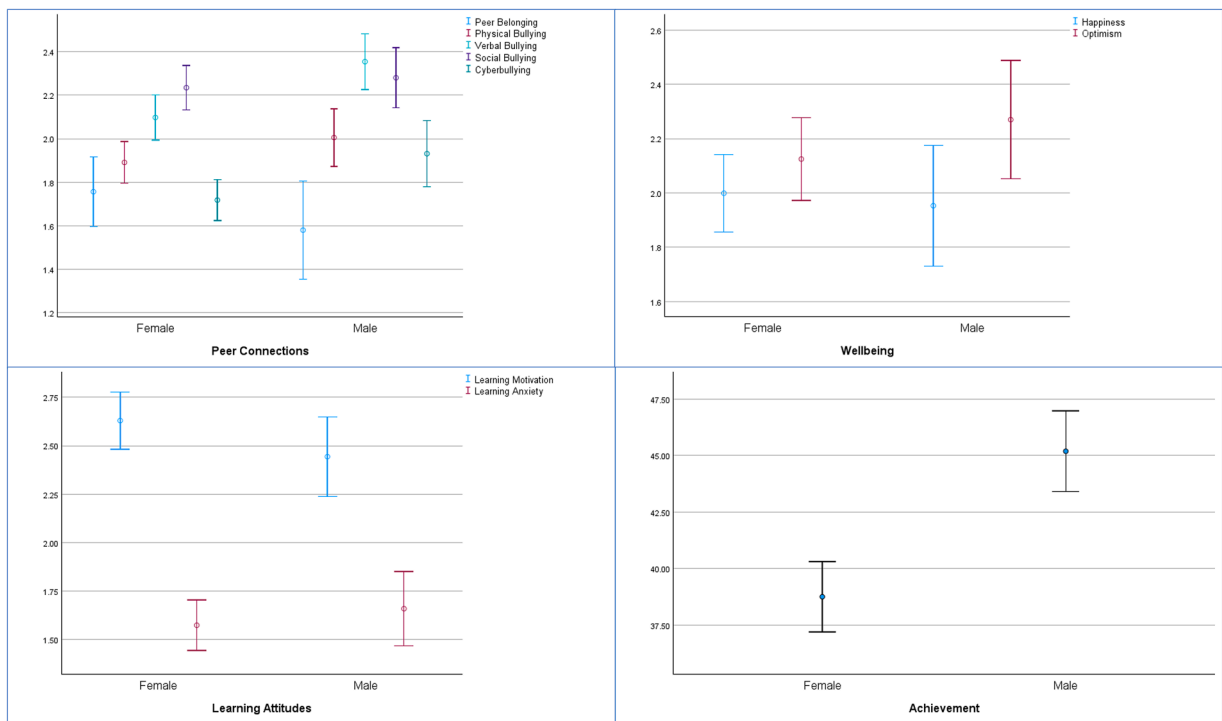


Fig. 2. Error Bars of Peer Connections, Wellbeing, Learning Attitudes and Achievement across the Groups.

Table 2

The Results of Multigroup Path Analysis between Girl (FG) and Boy (FG) Groups.

Variables		Group			
Dependent	Independent	Female Class		Male Class	
		Estimate	SE	Estimate	SE
Achievement (ACV)	Learning Anxiety (LANX)	−0.64	0.05	−0.76	0.04
	Learning Motivation (LMOT)	0.13	0.04	0.14	0.05
	Happiness (HAPPY)	0.13	0.04	0.09	0.04
	Sense of Belonging (BELONG)	0.19	0.06	NS*	NS*
	Verbal Bullying (VBBLY)	−0.14	0.06	NS*	NS*
Learning Anxiety (LANX)	Optimism (OPTIM)	−0.16	0.05	−0.12	0.06
	Happiness (HAPPY)	−0.33	0.05	−0.35	0.05
	Physical Bullying (PSBLY)	0.20	0.05	0.19	0.06
Learning Motivation (LMOT)	Happiness (HAPPY)	0.16	0.05	NS*	NS*
	Student Age (STAGE)	NS*	NS*	−0.22	0.08
Optimism (OPTIM)	Sense of Belonging (BELONG)	0.11	0.05	NS	NS
Happiness (HAPPY)	Social Bullying (SCBLY)	−0.21	0.05	−0.35	0.06
	Student age (STAGE)	NS*	NS*	−0.22	0.07
Physical Bullying (PSBLY)	Sense of Belonging (BELONG)	−0.57	0.04	−0.54	0.06
Verbal Bullying (VBBLY)	Sense of Belonging (BELONG)	−0.65	0.04	−0.58	0.06
Social Bullying (SCBLY)	Sense of Belonging (BELONG)	−0.69	0.03	−0.61	0.06
Cyberbullying (CBBLY)	Sense of Belonging (BELONG)	−0.61	0.03	−0.62	0.05

Note: NS\*=Not Significant ( $p > 0.05$ ).

$\beta = -0.35$ ), and PSBLY (FG,  $\beta = 0.20$ ; FG,  $\beta = 0.19$ ), directly impact student learning anxiety (LANX) in both groups. Notably, the negative influences of OPTIM and HAPPY reveal that students, both boys and girls, with lower levels of happiness and optimism are prone to experiencing difficulties in their learning endeavours. Additionally, the positive effect of PSBLY suggests that students who have been victims of verbal bullying face higher learning problems which led to their achievement negatively. Interestingly, the study also revealed gender-specific differences in the factors influencing students' motivation. In the female group, happiness (HAPPY,  $\beta = 0.16$ ) emerged as a significant predictor, indicating that unhappy girls are more likely to lack motivation for learning. On the other hand, in the male group, student age (AGE,  $\beta = -0.22$ ) was identified as a significant predictor, indicating that younger male students exhibit higher motivation levels leading to better academic performance compared to their older counterparts.

This study delves into the intricate factors shaping students' psychological and social wellbeing, revealing intriguing gender-

## Single-Gender Groups

0 = Female Group, N=358

1 = Male Group, N=189

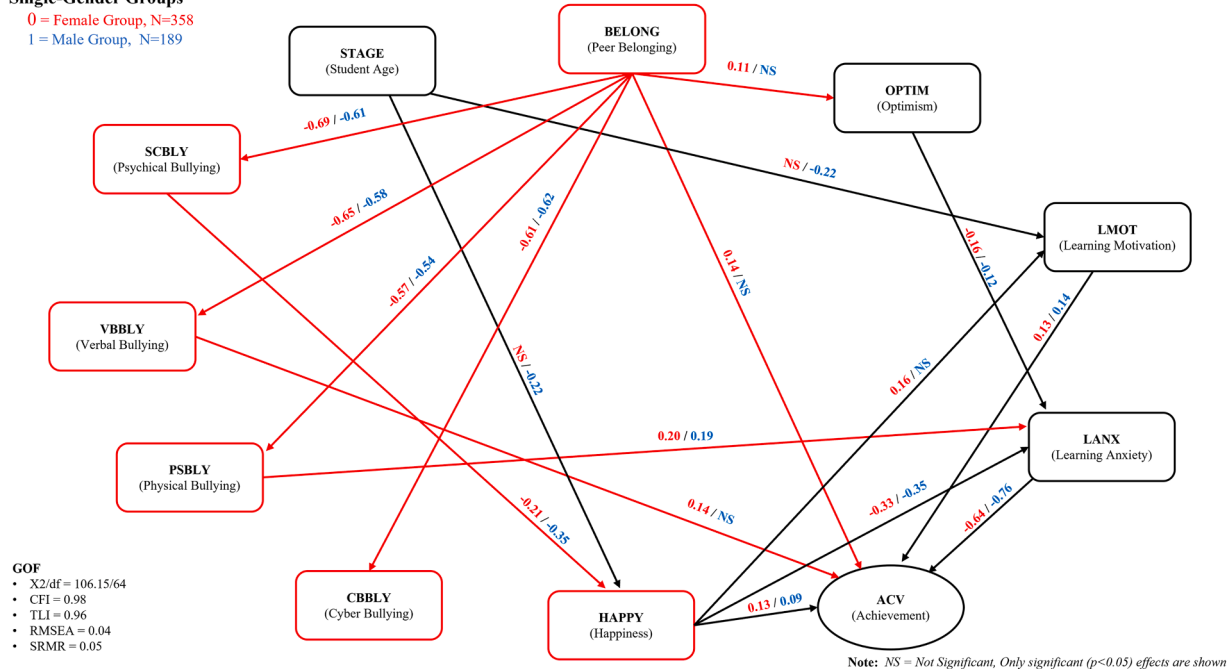


Fig. 3. Results of Multigroup Path Analysis between Female and Male Groups.

specific dynamics. Among females, the research unearthed a significant effect of their optimism levels (OPTIM) on their sense of belonging (BELONG) to their peers, demonstrating that girls who felt a strong sense of belonging with their classmates tended to be more optimistic ( $\beta=0.11$ ). Conversely, boys' optimism levels were not influenced by any specific predictors. Moreover, students' experiences with social bullying (SCBLY) emerged as a crucial factor of their happiness (HAPPY) across both genders, with those subjected to more social bullying exhibiting lower levels of happiness ( $\beta=0.21$  for females;  $\beta=0.35$  for males). Notably, older male students (AGE,  $\beta=-0.22$ ) were found to be less happy with their lives than their younger colleagues, highlighting an age-related difference in male students' happiness levels. Moreover, the study unveiled compelling interrelationships between social wellbeing domains, underscoring the pivotal role of students' sense of belonging (BELONG) in shaping their experiences with various forms of bullying. The negative effects of a strong sense of belonging (BELONG) on physical (PSBLY, FG,  $\beta=-0.57$ ; FG,  $\beta=-0.54$ ), verbal (VBBLY, FG,  $\beta=-0.65$ ; FG,  $\beta=-0.58$ ), social (SCBLY, FG,  $\beta=-0.69$ ; FG,  $\beta=-0.61$ ), and cyberbullying (CBBLY, FG,  $\beta=-0.61$ ; FG,  $\beta=-0.62$ ) indicate that both male and female students who foster positive relationships with their peers were less likely to face bullying occurrences leading to positive learning attitudes and outcomes.

## 6. Discussions

The primary objective of this research is to delve into the impact of student-peer connections on various facets such as wellbeing, learning attitudes, and academic outcomes in single-gender education. Specifically, this investigation is tailored to the distinctive context of single-sex classes within Indonesian *Pesantren*, Islamic boarding schools renowned for their focused and segregated educational environments. An intriguing and concerning revelation stemming from our comprehensive study was the discernible discrepancy in the impact of peer connections on student wellbeing and learning between genders. The research shed light on a compelling pattern, indicating that the direct and indirect effects of peer relationships on the emotional and academic spheres were notably more pronounced within the female group when contrasted with their male counterparts in the *Pesantren*/Islamic boarding schools. The analysis of the female group within the study yielded compelling insights into the influential factors impacting their learning performance. It became evident that peer belonging (BELONG), and verbal bullying (VBBLY) exerted discernible positive and negative effects on their academic achievement (ACV). Moreover, the study unveiled direct effects wherein physical bullying (PSBLY) significantly impacted learning anxiety (LANX), while peer belonging (BELONG) correlated positively with optimism (OPTIM). Additionally, social bullying (SCBLY) exhibited a negative influence on happiness (HAPPY) among female students in these classes. Conversely, the findings within the male group painted a slightly different picture, demonstrating a contrasting pattern. Here, the study identified a positive effect of physical bullying (PSBLY) on learning anxiety and revealed that social bullying (SCBLY) had a negative impact on student happiness.

The outcomes of this study suggest a noteworthy trend among female students, indicating that those who reported a strong sense of involvement, inclusion, and integration within their peer groups, coupled with a lower frequency of verbal bullying, tended to exhibit higher levels of learning performance. These findings corroborate a study by OECD (2019b) which highlighted that students



performing exceptionally well academically often reported feeling accepted and encountered less frequent incidents of bullying from their peers. This underlines the critical role of supportive peer environments and the urgency of addressing bullying behaviors in fostering improved academic performance, emphasizing the importance of inclusive and accepting social settings for optimal learning outcomes among students. For female students, a heightened sense of optimism in life was associated with a profound sense of belonging derived from peer relationships. This association indicates that when female students experience a deep sense of inclusion, integration, and connection within their peer groups, they tend to exhibit an increased overall sense of positivity and hopefulness in various aspects of their lives. This outcome aligns with earlier research conducted by [Tetzner and Becker \(2019\)](#), which suggested that the support and acceptance derived from peer networks significantly contribute to shaping an optimistic outlook among individuals. In the context of this study, the sense of belonging and less exposure to bullying experienced within peer groups appeared instrumental in cultivating a more positive and hopeful perspective on life among female students.

Markedly, comparable results were observed across both genders, underscoring that both boys and girls in *Pesantren* faced similar consequences in learning when subjected to instances of physical victimization. Specifically, the study revealed that experiencing physical victimization resulted in heightened learning anxiety, which, in turn, correlated with decreased academic performance among students regardless of gender. This parallel effect emphasizes the universal impact of physical victimization within the academic context, transcending gender lines and highlighting its detrimental influence on students' learning attitudes. Conversely, the research findings revealed an intriguing correlation: a reduction in instances of social bullying corresponded with elevated levels of happiness among female and male students within single-sex schools. This connection highlights that when students experienced a decrease in social bullying, regardless of gender, there was a discernible increase in their reported happiness levels. These outcomes align with prior investigations, emphasizing the pervasive and detrimental effects of physical victimization on students' learning experiences ([Turunen et al., 2017](#)), and emotional well-being ([Aunampai et al., 2022](#)) shedding light on the urgency of addressing and mitigating such challenges within educational settings. These findings signal a potential opportunity for interventions aimed at reducing physical and social bullying, thereby positively influencing students' anxiety about learning and unhappiness. Both boys and girls displayed comparable experiences in physical and social bullying; however, marked disparities surfaced in the realms of verbal and cyberbullying. Boys, on average, demonstrated significantly higher levels of verbal and cyberbullying compared to girls ([Aunampai et al., 2022](#)). Understanding these differences is pivotal for devising targeted strategies aimed at fostering a safer and more inclusive environment for all students, irrespective of gender within single-sex Islamic schools. For example, as revealed in this study in both groups, a strong negative impact of peer belonging on types of bullying. The results indicate that students who cultivate strong and positive connections with their peers are notably less likely to experience different forms of bullying ([Aunampai et al., 2022](#)). This association suggests that fostering a sense of belonging within peer groups serves as a protective factor against instances of bullying, consequently fostering more positive learning attitudes and outcomes among students in single-sex Islamic schools. This includes creating classroom activities, collaborative learning and discussions that promote inclusivity and understanding of gender-specific needs and challenges.

Despite the absence of significant disparities between girls and boys concerning wellbeing and learning attitudes, the research unearthed compelling interrelationships among these facets, suggesting complex associations where these measures interact and mutually impact one another. Notably, a consistent trend emerged across both genders, elucidating the influential role of learning motivation (LMOT) and happiness (HAPPY) on students' academic achievement. Students displaying higher levels of motivation and reporting greater happiness demonstrated enhanced academic performance, highlighting the pivotal role of these positive psychological factors in fostering better learning outcomes. Conversely, the result brought to light a starkly contrasting pattern regarding learning anxiety (LANX), exhibiting substantial negative effects on academic performance for both girls and boys. This finding underscores that heightened levels of learning anxiety were significantly associated with poorer academic outcomes, indicating the detrimental impact of anxiety on students' academic achievements irrespective of gender. These outcomes align with prior research emphasizing the substantial influence of student happiness ([Leung et al., 2021](#)), learning motivation ([Pedler et al., 2022](#)), and anxiety ([Huang, 2020](#)) on their academic achievements. The study underscores the paramount importance of prioritizing students' psychological wellbeing and addressing student challenges to facilitate their success in both female and male classrooms within Islamic school contexts.

The study uncovered insightful connections between the levels of learning motivation and anxiety in females and males, shedding light on how these aspects are significantly influenced by both student wellbeing and demographic factors. Remarkably, the research revealed compelling relationships within both genders, indicating that student optimism (OPTIM) and happiness (HAPPY) play pivotal roles in influencing learning anxiety negatively. This suggests that students with lower levels of optimism and happiness tend to experience higher levels of anxiety in their learning environments. Likewise, the study highlighted distinct factors influencing learning motivation among girls and boys. Specifically, it demonstrated that in girls' classrooms, student happiness exerts a notable influence on motivation levels, indicating that happier female students tend to exhibit higher motivation to learn. Conversely, in male classrooms, the study unveiled an intriguing relationship between age and motivation, indicating that younger male students display higher levels of motivation to learn and reported greater happiness compared to their older counterparts. This suggests an age-related difference in motivation among boys, with younger students exhibiting heightened enthusiasm for learning. These findings align with prior research emphasizing the association between learning attitudes and various domains of wellbeing ([Cunningham et al., 2005](#); [OECD, 2019b](#)), underlining the interconnectedness of these factors in shaping students' learning experiences. These insights underscore the importance of nurturing positive emotional states, addressing age-related motivational differences, and fostering conducive learning environments that accommodate diverse emotional needs, ultimately optimizing learning experiences for both female and male students.

## 7. Conclusion

The extensive investigation of student-peer connections within single-gender classrooms at Indonesian *Pesantren* has yielded profound insights into the intricate interplay among wellbeing, learning attitudes, and academic performance. This comprehensive investigation study has not only highlighted distinct gender-based impacts concerning peer relationships on emotional wellbeing and learning outcomes but has also emphasized the critical role of supportive peer environments in enhancing academic performance and fostering a positive outlook among students, particularly within the female cohort. The discernible influence of positive peer relationships and reduced instances of bullying on increased learning performance and heightened optimism in female students, accentuates the necessity of fostering inclusive and supportive environments within educational settings. The exposure of marked disparities in bullying experiences between genders underscores the urgent need for tailored interventions to cultivate a safer and more equitable environment for all students within single-sex Islamic schools. The findings of the interconnections between learning motivation, anxiety, and student wellbeing underline the significance of nurturing positive emotional states and addressing diverse emotional needs to optimize learning experiences in both gender groups, even though student age moderated boys' learning motivation and optimism levels differently. Ultimately, this research underscores the imperative of cultivating inclusive, supportive, and tailored educational environments that prioritize students' psychological wellbeing, thereby fostering optimal learning outcomes within single-gender educational settings at Indonesian *Pesantren*.

Creating classroom activities, collaborative learning opportunities and discussions that promote inclusivity and a deep understanding of gender-specific challenges is an essential strategy for fostering a supportive and equitable educational environment. This approach involves designing curricula and classroom experiences that not only acknowledge but actively engage with the diverse experiences and perspectives of all students. By integrating activities that encourage students to work together, educators can cultivate a sense of community and empathy among peers, helping students to appreciate and respect differences. Collaborative learning tasks, such as group projects and peer review sessions, enable students to share their strengths and learn from each other, thereby enhancing their collective problem-solving skills and academic outcomes. Discussions that are deliberately structured to explore gender-specific challenges provide a platform for open dialog, allowing students to express their thoughts and experiences related to gender dynamics within and beyond the classroom. This can lead to a deeper understanding of the barriers faced by different genders and foster a culture of inclusivity where all students feel valued, understood and included. Likewise, the significant impact of verbal, physical, and social bullying on academic achievement and emotional wellbeing, particularly among students, calls for robust anti-bullying programs. These programs should not only aim to prevent bullying behaviours but also equip students with coping strategies. Incorporating conflict resolution and empathy training can help mitigate the negative effects of bullying and foster a supportive peer environment in single-sex schools.

The study's reliance on self-report questionnaires to assess the social interactions, wellbeing, and learning attitudes of students introduces potential biases that could affect the reliability of the findings. One significant concern is the possibility of response bias, particularly social desirability bias, where participants might opt to provide answers they believe are more socially acceptable or favourable, rather than responses that genuinely reflect their true feelings or behaviours. This tendency could lead to a distortion of the data, masking the actual dynamics of student interactions and perceptions. Compounding this issue is the observed differential response style across age groups. Younger and older students may vary in their readiness to disclose negative experiences or attitudes, influenced by factors such as social desirability bias or different levels of self-awareness. Such discrepancies are especially problematic when exploring sensitive topics like wellbeing and social interactions, as they can significantly compromise the accuracy and validity of the collected data. Furthermore, the study's focus on Indonesian *Pesantren*/Islamic boarding schools limits the generalizability of its findings. The cultural, social, and educational context of Indonesia is unique, and while the insights gained provide valuable contributions to understanding the nuanced impacts of peer relationships within this setting, caution must be exercised when extrapolating these results to different cultural or educational environments. These limitations highlight the need for methodological diversity in future research and the importance of cross-cultural studies to enhance the universality and applicability of findings in the broader discourse on student wellbeing and learning attitudes.

## Ethics approval

This study was approved by the University of Adelaide's Office of Research Ethics, Compliance and Integrity (Approval No: H-2020-038)

## CRediT authorship contribution statement

**Abu Nawas:** Writing – original draft, Validation, Project administration, Formal analysis. **I Gusti Ngurah Darmawan:** Writing – review & editing, Formal analysis, Data curation. **Nina Maadad:** Writing – review & editing.

## Declaration of competing interest

No potential conflict of interest was reported by the authors

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## Appendix 1. Measures Used in this Study

SCALE	ITEM	RESPONSE
Learning Motivation (LMOT)	I am motivated to learn English, because:	1 = Strongly Agree
	1. Learning English is important for my study (Education)	Disagree
	2. With English, I can learn other cultures (Cultural Exchange)	2 = Disagree
	3. English skills are very useful for communicating with the foreigner (Global Communication).	3 = Agree
	4. English skills help me think critically (Personal Development).	4 = Strongly Agree
	5. English skills are important when I travel overseas (Travel)	
Learning Anxiety (LANX)	I get nervous when:	1 = Strongly Disagree
	1. I am learning English but I am not familiar with the topic.	Disagree
	2. I don't understand every word in the English tests.	2 = Disagree
	3. I come across English words that I don't understand.	3 = Agree
	4. The listening passage is read only once during the tests.	4 = Strongly Agree
	5. I make mistakes when speaking English.	
Happiness (HAPPY)	6. The English speakers are saying unless I know them well.	
	7. I get worried when I have little time to think about what I hear in English.	
	1. I feel happy.	1 = Strongly Disagree
	2. I have a lot of fun.	Disagree
	3. I love life.	2 = Disagree
	4. I am a cheerful person.	3 = Agree
Optimism (OPTIM)	5. I feel I am satisfied with my life.	4 = Strongly Agree
	6. I find most things amusing.	
	1. I am optimistic about my future.	1 = Strongly Disagree
	2. I think good things are going to happen to me.	Disagree
	3. I believe that things will work out, no matter how difficult they seem.	2 = Disagree
	4. I have been feeling good spirit.	3 = Agree
Peer Belonging (BELONG)	5. I am confident in my ability to solve problems.	4 = Strongly Agree
	6. I feel able to take anything on.	
	1. I feel part of a group of friends that do things together.	1 = Strongly Disagree
	2. I feel that I usually fit in with other kids around me.	Disagree
	3. When I am with other kids my age, I feel I belong.	2 = Disagree
	4. I feel that I have social support.	3 = Agree
Peer Bullying (BLY)	5. I have fun with other people.	4 = Strongly Agree
	6. I have a peer in my life who would provide me with a sense of belonging.	
	How often did you experience:	1 = Never
	1. <u>Physical Bullying</u> (for example, someone hit, shoved, or kicked you, spat at you, beat you up, or damaged or took your things without permission).	2 = Rarely
	2. <u>Verbal Bullying</u> (for example, someone called you names, teased, humiliated, threatened you, or made you do things you didn't want to do).	3 = Often
	3. <u>Social Bullying</u> (for example, someone left you out, excluded you, gossiped and spread rumours about you, or made you look foolish).	4 = Every time
	4. <u>Cyberbullying</u> (for example, someone using the computer or text messages to exclude, threaten, humiliate you, or to hurt your feelings).	

## Appendix 2. GOF Results of LMOT, LANX, HAPPY and OPTIM

Derived Variable	$\chi^2$	df	$\chi^2/df$	P-Value	CFI	TLI	RMSEA	WRMR
Learning Motivation (LMOT)	12.49	6.00	2.08	0.05	0.99	0.98	0.04	0.39
Learning Anxiety (LANX)	25.67	14.00	1.83	0.03	0.99	0.99	0.05	0.63
Happiness (HAPPY)	11.77	8.00	1.47	0.16	0.98	0.97	0.03	0.42
Optimism (OPTIM)	23.01	7.00	3.29	0.00	0.98	0.96	0.06	0.65
Peer-Belonging (BELONG)	24.00	9.00	2.67	0.00	0.97	0.94	0.06	0.55

**Appendix 3. The Results of Factor Loadings, AVE and CR for LMOT, LANX, HAPPY, OPTIM, PEER**

Scale	Item	N = 547		
		$\lambda$	AVE	CR
Learning Motivation (LMOT)	LMOT1	0.52	0.65	0.88
	LMOT2	0.56		
	LMOT3	0.83		
	LMOT4	0.65		
	LMOT5	0.74		
	LMOT6	0.62		
Learning Anxiety (LANX)	LANX1	0.75	0.75	0.94
	LANX2	0.77		
	LANX3	0.77		
	LANX4	0.70		
	LANX5	0.76		
	LANX6	0.79		
	LANX7	0.71		
Happiness (HAPPY)	HAPPY1	0.51	0.60	0.91
	HAPPY2	0.43		
	HAPPY3	0.71		
	HAPPY4	0.71		
	HAPPY5	0.61		
	HAPPY6	0.65		
Optimism (OPTIM)	OPTIM1	0.70	0.64	0.87
	OPTIM2	0.56		
	OPTIM3	0.83		
	OPTIM4	0.69		
	OPTIM5	0.68		
	OPTIM6	0.40		
Peer Belonging (BELONG)	BELONG1	0.64	0.67	0.89
	BELONG2	0.65		
	BELONG3	0.67		
	BELONG4	0.77		
	BELONG5	0.62		
	BELONG6	0.67		

Note:  $\lambda$  = Factor loading, AVE= Average Variance Extracted, CR= Construct Reliability

**Appendix 4. Item Fit of the Student Achievement**

Item	Estimate	S. E	Infit			Item Delta	Item Discrimination
			MNSQ	CI	t		
ITEM1	-0.85	0.06	1.01	(0.95, 1.05)	0.5	-0.85	0.30
ITEM2	0.21	0.06	0.97	(0.95, 1.05)	-0.9	0.21	0.41
ITEM3	0.28	0.06	0.98	(0.94, 1.06)	-0.8	0.28	0.26
ITEM4	-0.58	0.06	1.00	(0.96, 1.04)	-0.1	-0.58	0.37
ITEM5	0.33	0.06	0.98	(0.94, 1.06)	-0.5	0.33	0.41
ITEM6	-0.18	0.06	0.98	(0.96, 1.04)	-1.1	-0.18	0.35
ITEM7	0.18	0.06	1.02	(0.95, 1.05)	0.6	0.18	0.26
ITEM8	0.51	0.07	0.99	(0.92, 1.08)	-0.3	0.51	0.25
ITEM9	0.14	0.06	1.01	(0.95, 1.05)	0.5	0.13	0.23
ITEM10	0.41	0.07	0.99	(0.93, 1.07)	-0.2	0.41	0.26
ITEM11	0.00	0.06	0.97	(0.96, 1.04)	-1.2	-0.00	0.32
ITEM12	-0.06	0.06	0.95	(0.96, 1.04)	-2.4	-0.06	0.37
ITEM13	0.18	0.06	0.99	(0.95, 1.05)	-0.3	0.18	0.26
ITEM14	-0.13	0.06	1.01	(0.96, 1.04)	0.7	-0.13	0.23
ITEM15	-0.41	0.06	0.98	(0.97, 1.03)	-1	-0.41	0.30
ITEM16	0.55	0.07	1.02	(0.92, 1.08)	0.6	0.55	0.20
ITEM17	0.07	0.06	0.98	(0.95, 1.05)	-0.8	0.07	0.31
ITEM18	-0.55	0.06	1.00	(0.96, 1.04)	-0.1	-0.55	0.28
ITEM19	-0.15	0.06	1.01	(0.96, 1.04)	0.6	-0.15	0.23
ITEM20	0.06*	0.28	1.00	(0.95, 1.05)	0.2	-0.15	0.29

Note: Separation Reliability= 0.97, Chi-square test of parameter equality = 655.12, df = 19, Sig Level = 0.000

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