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Factors Influencing Student Reading Achievement Based on Programme for International Student Assessment 2018 Dataset for Vietnam

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Abstract

Students at all education levels rely on reading literacy to drive their improvement in other subjects. Meanwhile, reading remains not easy to be comprehensive for all students. Specifically, students' reading comprehension could be influenced by student level factor. The student-level factor is parents' emotional support since it contributes to improving students' academic performance. In addition, enjoyment of reading can be a factor that affects students' reading comprehension. Significantly, competitiveness in studying influences students to try to work harder, which assists them in improving their academic performance. Hence, this study investigated whether student-level factors—parents' emotional support, enjoyment of reading and competitiveness—influence students' reading achievement.

In this cross-sectional study, a quantitative research method was employed to identify and investigate the factors that influence the outcome of interest (i.e. students' reading achievement). First, survey questionnaires were validated by using confirmatory factor analysis. In addition, reliability (Cronbach's alpha) was analysed by using Statistical Package for Social Sciences (version 22) software. Structural equation modelling was employed to explain the relationship between the student-level variables.

The analysis results showed that all student-level factors, except parents' emotional support, had a significantly direct effect on students' reading performance. Moreover, among these factors, enjoyment of reading had the greatest impact on their reading achievement.

The findings of this study suggest that 15-year-old Vietnamese students' achievement in reading are significantly influenced by multiple factors, both direct and indirect. This finding indicates that all students must be encouraged to engage in an enjoyable, constructive and competitive learning environment. It would be beneficial for future research to use a wide range of information and a qualitative research approach. Last, the implications of the findings of this thesis for educational policies, practice and theory are also discussed.

Keywords: *Parents' emotional support, Reading Enjoyment, Competitiveness, Computers Availability, School climate*

1. Introduction

Teaching standards and assessment practices in the class are established to obtain objective values for improving students' performance. Reading is a key subject that drives their long-term development. However, for most students—ranging from those at the basic schooling level to those at the tertiary education level—it is classified as a challenging skill to acquire. Consequently, numerous researchers have investigated factors that affect students' reading achievement and performance.

Reading ranks among academic competencies based on its significance for enabling learners to gain, innovate and constitute new knowledge. Learners might have more opportunities to master other study fields beyond reading majors since reading skills and competence facilitate comprehension in a typical context, meaning that learners can acquire the requisite knowledge for their study. Therefore, reading competency is essential for the academic performance and achievement of middle school students. In addition, the reading strategy changes according to the study level. In primary education, students commence with the reading strategy of 'learning to read', whereas students shift to the 'reading to learn' strategy. By doing so, students must use their reading skills to acquire knowledge from a typical text since reading is a learning tool. Students' cognitive development is affected by reading literacy. It can contribute to their success in higher education. Therefore, their future success relies on reading excellence.

Many studies have demonstrated that the reading achievement of learners stems from Student-level factors, such as students' gender, parents' emotional support, enjoyment of reading and competitiveness, are vital for students' academic performance and achievement. Parents play a significant role in supporting their children's education, in terms of mental as well as physical aspects. Students have a great opportunity to be fully prepared for their learning path because at least the basic needs of human beings are ready for them. For instance, students are provided vehicles for commuting to school, learning accessories and a perfect atmosphere of family life. Importantly, mental or emotional support is core to encouraging students to participate actively in academic activities and to perform well academically. According to Castro et al. (2015), students' high academic achievement is linked with parental involvement; that is, parents supervised students when they performed learning activities, meaning that families contribute to student development in schoolwork as well as in developing reading habits.

Further, enjoyment of reading is essential for reading motivation and comprehension, and thus contributes to improving academic performance and achievement. Students who are pleased with their reading activities might have more opportunities to access various useful written texts for their learning. In addition, they may improve their engagement in reading, which would enhance their reading skills and comprehension. However, it is not easy for students to become involved in reading activities, particularly in academic contexts since these contexts are generally sophisticated and require academic language skills.

Competitiveness among students in studying also significantly affects their school performance and academic achievement. Students may develop the intention to engage in academic activities when they are in a competitive situation. In addition, they may feel that competition in learning makes studying thrilling and enjoyable (Echazarra, 2020). Previous studies have shown educational achievement to contribute 54% of competitiveness (Baumann & Winzar, 2016). Competitive students are considered active students in the classroom, who use competition to achieve success (Nguyen & Nguyen, 2010). However, competitiveness could be characterised as indirect effects on academic performance since the behaviours of competitive people feasible for success (Baumann & Harvey, 2018).

The present study aims to explore the effects of student-level factors parental support, competitiveness, enjoyment of reading and gender—and school-level factors availability of computers at school and school climate on 15-year-old Vietnamese students' reading achievement according to the PISA 2018 dataset.

2. Materials and Methods

2.1 Research Design

The current study applies a quantitative approach. This approach is defined as a type of research method that requires the collection of numerical data and a view of the interaction between theory and researcher (Bryman, 2016). It is used to investigate the cause and effect of certain situations, and statistical data analysis is normally employed to probe given hypotheses (Creswell & Creswell, 2017).

1) Large-Scale Secondary Data

The present study used secondary data, namely, data from PISA 2018 conducted by the OECD. PISA 2018 aimed to measure the knowledge and academic skills in reading literacy, science literacy and mathematics literacy of 15-year-old students from 79 participating countries and economies (OECD). Regarding the PISA 2018 survey, the focus was on reading. It also assessed other background variables that influence the achievement of reading, mathematics and science skills, such as students' attitudes, beliefs and dispositions and their home, school and learning experiences (OECD, 2021).

In Vietnam, 5,377 participants from 151 schools completed the PISA 2018 test (girls: 2,780; 51.7% and boys: 2,597; 48.3%). These participating students represented 926,260 students aged 15 years in the country (OECD, 2019b). The PISA 2018 assessment of Vietnamese students was focused on mathematics, science, reading and global competence. In addition, PISA 2018 collected data from questionnaires completed by students and principals relating to Vietnamese students' background, school constructs and metacognitive constructs. However, the present study focuses on the reading literacy assessment part, and the school-level questionnaire on the school climate and the availability of computers at school, which were part of the school construct questionnaire. In this study, data from 5,377 Vietnamese student participants and 151 principals were analysed to ascertain perceptions regarding school-level factors and student-level factors that influence students' reading achievement.

2)Variables Included in the Study

A variable is 'a number, amount, or situation that can change and affect something in different ways' (Variable, 2021). According to Creswell (2012), variables are of two types: dependent and independent. A variable, in quantitative research, is a factor that can be controlled or changed in an experiment (Wong, 2014). Six main variables were analysed in this study: availability of computers, school climate, students' gender, parents' emotional support, enjoyment of reading and competitiveness.

- *Student gender*

Gender student data are collected by question (ST004D01T) in PISA 2018. The variable takes the value 1 if the student is a male and 2 if female.

- *Parental support*

Students were asked to rate their perceived emotional support from their parents (EMOSUPS, ST123), in PISA 2018, using three items on a 4-point Likert scale; the response categories were *Strongly disagree*, *Disagree*, *Agree* and *Strongly agree*.

- *Enjoyment of reading*

To measure the enjoyment of reading (JOYREAD, ST160), five items were taken from PISA 2009 (ST24). To allow for trend comparisons, scaling was conducted based on all 11 items of ST24 (2009) and all five items of ST160 (2018), and warm likelihood estimates (WLE) scores reported for 2018 were transformed to facilitate direct comparison with those reported in PISA 2009. The four response categories ranged from *Strongly disagree*, to *Disagree*, *Agree* and *Strongly agree*. Negatively

worded items (for 2018: ST160Q01IR, ST160Q04IR and ST160Q05IR) were reverse-scored for item response theory (IRT) scaling such that higher WLE scores on this derived variable indicate higher levels of enjoyment of reading.

- *Competitiveness*

In PISA 2018, the scale on competitiveness (COMPETE, ST181) consists of three items that collect information about students' competitiveness achievement motive. A 4-point Likert scale ranging from *Strongly disagree*, to *Disagree*, *Agree* and *Strongly agree* is used.

Table 1 *Variables Used in Data Analysis*

Construct	Variable	Description	Value
Gender	ST004D01T	Student (Standardised) gender	1 = Female 2 = Male 5 = Valid skip 7 = Not applicable 8 = Invalid 9 = No response
Parents' emotional support	ST123Q02NA	My parents support my educational efforts and achievements.	1 = Strongly disagree 2 = Disagree 3 = Agree 4 = Strongly agree 5 = Valid skip 7 = Not applicable 8 = Invalid 9 = No Response
	ST123Q03NA	My parents support me when I am facing difficulties at school.	
	ST123Q04NA	My parents encourage me to be confident.	
Enjoyment of reading	ST160Q01IAr	I read only if I have to.	
	ST160Q02IA	Reading is one of my favourite hobbies.	
	ST160Q03IA	I like talking about books with other people.	
	ST160Q04IAr	For me, reading is a waste of time.	
	ST160Q05IAr	I read only to get information that I need.	

2.2 Data Analysis

2.2.1 Descriptive Statistics

To present the characteristics of the sample, descriptive analysis is employed. Descriptive statistics include statistical procedures that can be used to describe the population of the study and can be used for obtaining an instant picture of the distribution (Field, 2009). In this study, SPSS (version 22) was used to calculate the percentages of a categorical variable as well as the frequency distribution of categorical and continuous variables. The means, standard deviations, skewness and kurtosis were calculated. In addition, SPSS was used for graphics presentation, namely the bar graphs used to present categorical variables.

Validating and Analysing Reliability of Measurements

The validity and reliability of the instrument used must be determined to establish the scales' utility since these scales were adapted from existing questionnaires. For this purpose, CFA was employed. AMOS (version 22) was used to investigate the validity of the scale structure. Meanwhile, SPSS (version 22) was used examine the reliability of the scale structure of adapting questionnaires.

1) Confirmatory Factor Analysis

CFA is one of the most interesting analysis instruments used in research and is employed to calculate the validity of existing questionnaires. It is defined as 'a way of testing how well a prespecified measurement theory composed of measured variables and factors fits reality as

captured by data' (Hair, Black, Babin, & Anderson, 2018, p. 660). According to Harrington (2009), CFA is a quantitative data analysis approach under the SEM family. It allows the assessment of the relationship between latent variables (factors) and observed variables (indicators) to examine the fitness of data (Brown, 2015; Mueller & Hancock, 2001). CFA is used to indicate factors that elucidate covariation and variation among a set of indicators (Brown, 2015, p. 35). Two fundamental elements of CFA are commonly used for investigating the validity of constructs—factor loading and fit indexes.

2). Validity of Constructs

According to Messick (1989), 'validity is an integrated evaluative judgement of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of interpretations and actions based on test scores or other modes of assessment' (p. 13). Validity, or construct validity, indicates the extent to which a measure adequately represents the underling construct that it is intended to measure. Theoretical and empirical approaches. The various types of validity that are measured includes content validity and convergent validity (Ginty, 2013; Brown, 2010). Zakariya (2020) and Arikan (2015) have stated that construct validity is examined through CFA.

3). Factor Loading

The size of the factor loading is significant in determining the validity of the considered instrument. High loadings on a factor would indicate that they converge on the latent construct, meaning that there is high convergent validity. All factor loadings should be statistically significant at least since they could still be weak in terms of strength, especially when the sample size is large. The standardised loading estimates should be 0.5 or higher, and ideally 0.7 or higher. At a minimum, the standardised loading estimate of 0.3 is the acceptable value (Hair et al., 2018, p. 676).

4). Fit Indices

The fit of the models can be measured by calculating several goodness-of-fit indices. Hu and Bentler (1999) explained that the index for examining the overall fit of a model is the chi-square value. The recommended values for the fit index range from as low as 2.0 (Tabachnick & Fidell, 2007) to as high as 5.0 (Wheaton, Muthen, Alwin, & Summers, 1977). In addition, the root mean square error of approximation (RMSEA) index indicates how well the population's covariance matrix is fit by the model (Byrne, 1998). According to Hu and Bentler (1999), the RMSEA cut-off value is close to 0.06. RMSEA values of 0 and close to 0 indicate good model fit (Brown, 2015, p. 72). The comparative fit index (CFI) is positively applied with a small sample size (Tabachnick & Fidell, 2007). The CFI statistic can range between 0.0 and 1.0, with values close to 1.0 indicating a good fit. According to Hu and Bentler (1999), the recommended CFI values are ≥ 0.95 as indicators of good fit. The Tucker–Lewis index (TLI) was also used in the current study. TLI takes account of the consequences of adding parameters. Meanwhile, both the CFI and TLI are interpreted similarly. Another indicator of convergence validity is reliability, which is most often estimated using coefficient alpha.

5). Analysing Reliability of Measurements

Reliability is a predictor of an indication for convergent validity. It is widely used in social and organisational studies (Cronbach, 1951). High construct reliability indicates there is internal consistency, which means the measures all consistently represent the same latent construct (Hair et al., 2018). A generally accepted rule is that a Cronbach's alpha value of 0.6–0.7 indicates an acceptable level of reliability, and a value of 0.8 or above indicates a very good level (Ursachi, Horodnic, & Zait, 2015, p. 681).

2.2.2 Structural Equation Models

SEM provides a family of statistical models that seek to explain the relationships among multiple variables. It is also termed as

covariance structure analysis and latent variable analysis, and sometimes, even referred to by the name of the specialised software package used (Hair et al., 2018). It is defined as 'a multivariate technique that considers and estimates the linear and/or causal relationships between multiple exogenous (independent) and endogenous (dependent) constructs through a simultaneous, multiple equation estimation process' (Babin & Svensson, 2012, p. 321). SEM examines the structure of interrelationships expressed in a series of equations, similar to a series of multiple regression equations. These equations depict all relationships among constructs (the dependent and independent variables) and variables involved in the analysis. Just as importantly, a theoretical structure specifies the variables and constructs that are not likely to be related to one another. Constructs are unobservable, or latent factors, represented by multiple variables. Each multivariate technique has been classified either as an interdependence or dependence technique. SEM can be thought of as a unique combination of both types of techniques because SEM is based on two familiar multivariate techniques: factor analysis and multiple regression analysis.

In the SEM analysis in this study, only the variables related to the student-level factors were included. These factors are student gender, parents' emotional support, enjoyment of reading and competitiveness. In this case, SEM analysis was used to identify the student-level factors that (directly or indirectly) affect student reading achievement.

3. Results

3.1 Descriptive Analysis

1) Demographic Information: Student Gender

Overall, 5,377 Vietnam students participated in PISA 2018. As shown in the graph and table, the number of female students was higher (n = 2,780; 51.7%) than that of males (n = 2,597; 48.3%).

2) Descriptive Statistic

1. Student Data

The mean values for the items for each variable/construct were slightly similar. For example, the mean scores of the three items of parents' emotional support exceeded 3.0 and ranged between 3.06 and 3.19. In contrast, the average estimates for all items of enjoyment of reading and competitiveness varied slightly. The mean values of the four items of enjoyment of reading exceeded 2.07, while that of one item, 'For me, reading is a waste of time', was 1.68. These results showed that, on average, Vietnamese students had a positive attitude toward reading literacy, meaning that they agreed that reading is enjoyable. To illustrate, the item 'Reading is one of my favourite hobbies' had the highest mean value among the items in the enjoyment of reading variable. Vietnamese students quite strongly disagreed that it is a waste of time to spend on reading. Meanwhile, two items of competitiveness had mean values of 2.33 and 2.84, whereas that of the item of 'I try harder when I'm in competition with other people' was the highest at 3.21. These results revealed that, on average, 15-year-old Vietnamese secondary school students agreed with the positive impact of competitiveness in their study, and especially that students try harder when in competition with others. Similar outcomes were also shown by the results for students' reading achievement. Nine plausible values of the student reading scores were 503, while plausible value 9 was higher by a point with a score of 504. Further, as for the shape of the distribution, the skewness and kurtosis coefficients for 11 items across three variables and 10 plausible values of reading achievement were normally distributed within ±2 and ±5, respectively. In a normal distribution, most data points are comparatively similar; that is, they occur within a small range of values with fewer outliers (George & Mallery, 2010; Kim, 2013).

3.2 Construct Validity and Reliability

3.2.1 Construct Validity: Confirmatory Factor Analysis

1). Confirmatory Factor Analysis for Student-Level Factors

a. Parents' Emotional Support

The results showed that all indicators of the variable are statistically significant with high loads. The measures of all items are acceptable with all values exceeding 0.4 (the expected value). The table shows that the highest loads of parents' emotional support variable were for 'My parents support me when I am facing difficulties at school' at 0.84, and the weakest indicator was 'My parents support my educational efforts and achievement', which had a factor loading of 0.80. Moreover, the results of goodness-of-fit indices are shown in Table 6. The analysis results showed that TLI and CFI values are 0.997 and 1.00, respectively which exceeded 0.95 (standard value), accounting for 0.997 and 1.000, respectively. Further, the RMSEA value (0.026) was acceptable since it was lower the acceptable cut-off value (<0.06). Therefore, it can be concluded that the parents' emotional support variable has acceptable construct validity.

b. Enjoyment of Reading

All factor loadings were statistically highly significant with values that met the acceptable value (0.4). In addition, the strongest indicator of this variable was 'I read only to get information that I need' with a factor loading of 0.63, and the weakest indicator of this measure was 'I like talking about books with other people', which accounts for 0.43. Table 8 presents the acceptable outcomes of goodness-of-fit indices. The values of TLI and CFI exceeded 0.95 (standard value), at 0.974 and 0.995 respectively, and the RMSEA value of 0.04 was acceptable (<0.06). Therefore, these results showed that the enjoyment of reading variable had good construct validity of structural ecoefficiency; all items represent their construct.

c. Competitiveness

The results showed that all indicators were statistically significant with acceptable loads. The measures of all items exceeded 0.4 (standard value). The table shows that the largest loads of the competitiveness variables were for 'It is important for me to perform better than other people on a task' with a factor loading of 0.53, and the weakest indicator was 'I enjoy working in situations involving competition with others' with a factor loading of 0.44. Moreover, the results of goodness-of-fit indices of competitiveness variables are shown in Table 10. The analysis results showed that the TLI value was 0.759, which is close to the acceptable value (0.9), and the CFI values (0.960) exceeded 0.95. In addition, the RMSEA value (0.091) was poor and was not within the acceptable cut-off limit (<0.06). Therefore, it can be concluded that the competitiveness variable has moderate construct validity.

d. Reading Achievement

The results revealed that all factor loadings were strongly statistically significant with high factor loadings (0.92). The outcomes of goodness-of-fit indices are presented in Table 12. The TLI and CFI values, both of which were 1.00, exceeded 0.95 (standard value), and the RMSEA value was 0.06, which is acceptable based on the consensus cut-off value. Therefore, the results showed that reading achievement variables had good construct validity.

2). Reliability: Cronbach's Alpha

The results revealed that the Cronbach's alpha value for school climate, parents' emotional support and enjoyment of reading, which were 0.898, 0.858 and 0.724, respectively, were within the acceptable range. Meanwhile, the values for the remaining two factors were less than the standard value (0.7), at 0.489 (availability of computers at school) and 0.509 (competitiveness), which indicated poor internal consistency since the alpha value was less than 0.6 (Rosenthal, 2011) However, although the availability of computers at school and competitiveness variables had unacceptable alphas, they were considered valid for the construct to use in the analysis. This is because the form of construct validation is meaningful for establishing the measurements' meaning (Cortina, 1993). In summary, the measurements had good validity and reliability of constructs, and thereby they were appropriate to be used in the analysis conducted in this study.

3.3 Structural Equation Modelling Analysis

The results from the structural model of SEM are presented in Figure 15. The figure shows that all considered student-level factors, except parents' emotional support, directly affect students' reading achievement, namely, student gender, enjoyment of reading and competitiveness. It was noticed enjoyment of reading had the strongest direct effect on students' reading achievement, with the correlation coefficient of $\gamma = 0.17$. Thus, students' enjoyment of reading positively influences students' reading achievement, which means that when enjoyment of reading increases by 1, reading achievement will also increase by 0.17 points. Surprisingly, it was found that students' competitiveness also had a strong positive direct effect on reading comprehension skills ($\gamma = 0.13$). This result indicates that when competitiveness increases by 1, reading achievement also increases by 0.13 points. Student gender was also found to directly affect student reading achievement ($\gamma = -0.10$), meaning that female students have greater success in terms of reading achievement than male students do.

Further, parents' emotional support had a strong direct effect on students' enjoyment of reading ($\gamma = 0.16$), which means that the more emotional support that parents provide to their children, the more students enjoy their readings. In addition, parents' emotional support also directly influenced students' competitiveness in study ($\gamma = 0.18$), which suggests that the more support that students receive from parents regarding the emotional aspects, the more they compete in their study within school. Interestingly, students' gender had a strong direct effect on parents' emotional support ($\gamma = -0.03$), which means that parents support their female children more than they do their male children. Students' gender also had a strong direct effect on students' reading enjoyment ($\gamma = -0.19$), which indicates that female students enjoyed reading more than male students did. Another interesting finding is about how significant the effect of enjoyment of reading is on competitiveness. Enjoyment of reading had a direct effect on students' competitiveness ($\gamma = 0.09$), which indicates that the more the students enjoy their reading, the higher their competition.

In addition, there were three indirect effects on students' reading achievement, which arose from students' gender, parents' emotional support and students' enjoyment of reading. Although students' gender had a direct negative effect on their reading performance, it had a strong indirect effect on reading achievement ($\gamma = -0.03$), which means that being a male student still had a lower effect on reading achievement scores than being a female student. These values were influenced by parents' emotional support, students' competitiveness and enjoyment of reading as the mediator. Further, parents' emotional support also had a significant indirect effect on students' reading performance ($\gamma = 0.05$).

The gender variable was classified into Female = 1 and Male = 2. The results showed that Vietnamese female students obtained a higher score than males on reading achievement ($\gamma = -0.10$). Female students found reading more enjoyable than males did ($\gamma = -0.19$), and female students were also influenced more by parents' emotional support than were males ($\gamma = -0.03$).

All the direct, indirect and total direct effects (see Table 19) were found to be statistically significant. The smallest direct effect was of students' gender on parents' emotional support (−0.03) and the smallest indirect effect was of enjoyment of reading on students' reading achievement (0.01). Further, the largest direct effect was of parents' emotional support on enjoyment of reading (0.19), and the largest indirect effect was of students' gender on enjoyment of reading (0.05) and of parents' emotional support on reading performance (0.05). Enjoyment of reading (0.19) had the highest total effect on students' reading scores, followed by students' gender (−0.13) and competitiveness (0.13). Parents' emotional support (0.05) had the lowest total effect on students' reading achievement.

4. Discussion

4.1 RQ1: Does Their Gender Have Significant Direct and Indirect Effects on the Reading Literacy Performance of 15-Year-Old Vietnamese Students?

This study showed that students' gender ($\gamma = -0.10$) had a significant effect, but a negative direct effect, on student reading achievement. This result means that female students outperform male students in the reading test. This finding is in line with that of Mol and Jolles (2014) and Logan and Johnston (2009), namely that girls outperform boys in reading comprehension. A likely explanation for this result is that girls had a higher preference for reading and engaged in reading activities longer than boys did. Consequently, girls had more opportunities to obtain an advantage, especially in the language course (Voyer & Voyer, 2014). Moreover, motivation is a significant factor that influences students' engagement. In this respect, girls had higher intrinsic motivation than boys for reading.

4.2 RQ2: Does Their Parents' Emotional Support Have Significant Direct and Indirect Effects on the Reading Literacy Performance of 15-Year-Old Vietnamese Students?

The analysis results revealed that although parental support had a significant effect on student reading achievement, it did not have a direct effect. This finding is consistent with those of prior studies that students' academic performance is influenced by the parental support factor (Durisic & Bunijevac, 2017). In addition, it is close to Nalipay et al.'s (2020) finding that students' emotion that is influenced by their parents affects student academic achievement. Gaining emotional support from parents leads to good mental health, which contributes to supporting students in actively engaging in the academic environment. Therefore, parents' emotional support factor was key in terms of preparing their children's mental health before engaging in schoolwork.

4.3 RQ3: Does Their Enjoyment of Reading Have Significant Direct and Indirect Effects on the Reading Literacy Performance Of 15-Year-Old Vietnamese Students?

The analysis in this study revealed that enjoyment of reading **(**$\gamma = 0.17$) had the most effect on student reading achievement. This result means that the more students enjoy reading, the better they perform in reading tests. This finding is consistent with that of Mol and Jolles (2014), who showed that students who enjoyed reading gained higher grades in their assessments, whereas low school performance was because of lack of enjoyment of reading. Similarly, Pekrun, Lichtenfeld, Marsh, Murayama and Goetz (2017) stated that positive emotions, including enjoyment and pride, have a positive effect on learners' academic success. In addition, the most significant variable in the enjoyment of reading construct was 'Reading is one of my favourite hobbies'. Thus**,** enjoyment of reading encourages students to engage in the reading environment and enhances students' reading habit. It is argued that a significant enabler that supports the lengthy learning process of reading is engagement. Consequently, the enjoyment of reading variable is identified as a factor that affects the improvement of students' reading performance (Tavsancil, Yildirim, & Bilican Demir, 2019).

4.4 RQ4: Does Their Competitiveness Have Significant Direct and Indirect Effects on the Reading Literacy Performance of 15-Year-Old Vietnamese Students?

The SEM also showed that the competitiveness variable ($\gamma = 0.13$) had a significant direct effect on student reading achievement. This result indicates that the more that students competed with other students in their learning environment, the better they performed in the reading test. This finding is also consistent with Unal and Uyar's (2020) finding that competitiveness influences students to have more comprehension in academics. This is because students actively engage in the learning

process when competition is valued in their schools. However, this study's finding is not in line with Roseth, Johnson and Johnson's (2008) and Yassin, Razak, and Maasum (2018) finding that the positive achievement of students is associated with the cooperative relationship between them. In this respect, learning development occurs by sharing ideas and understanding on the lesson context among peers. Therefore, this finding indicates that it is essential to encourage students to engage with their learning activities by forming both competitive and cooperative relationships with their counterparts.

5. Conclusion

This study is the first of its kind in the Vietnamese context. No recent studies have been conducted in relation to the effects of students' affective variables, namely parents' emotional support, enjoyment of reading and competitiveness, on students' reading performance and by using the reading scores from the PISA datasets. The study was guided by existing literature on the influence of student-level factors. Most of the findings in this study confirm those in the literature. All findings of this research highlight those educational policymakers, teachers and educational practitioner in Vietnam need to pay attention to ensuring gender equity, developing productive and constructive learning activities for improving students' performance in reading comprehension.

In this study, secondary data from the OECD were employed. These data were analysed by using SPSS, AMOS and HLM to examine the effects of independent variables on dependent variables. The findings indicate that all considered variables had significant effects on students' reading scores. Students' enjoyment of reading from the student-level factor contributed the strongest direct effects on their reading performance, followed by competitiveness and students' gender, in that order. Meanwhile, parents' emotional support had significant indirect effects on students' reading achievement. Therefore, to improve the reading literacy of 15-year-old students, Vietnamese educational policymakers, teachers, educational practitioners and relevant stakeholders should (1) improve students' opportunities to enjoy their reading activities and to compete in the learning environment within schools; and (2) provide more emotional support to children to pursue their education.

6. Conflict of Interest

We certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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