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Article

The Sociology of Reading Among Malaysian Youths: Building A Culture of Reading to Enhance Environmental Awareness and Develop Pro-Environmental Behavior

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Abstract

Malaysia established its Eleventh Malaysia Plan (11MP) to achieve sustainable economic development, with one of its primary strategic thrusts being "accelerating human capital development for an advanced nation." This study examines one aspect of human capital development by reviewing the reading habits of Malaysian youths and the conjecture surrounding a 'crisis' among youths and their engagement with reading, to foster a culture of reading to improve education, focusing on human behavioral interventions to increase environmental knowledge and awareness, and developing human capital with pro-environmental behavior. Data from 250 valid questionnaires was analyzed using the variance-based Partial Least Squares-Structural Equation Modeling (PLS-SEM) method. The theoretical framework of this study is based on Dewey's Educational Theory of Constructivism and Social Cognitive Theory. The results reveal that attitude and parental influence significantly promotes reading habits, while perceived stress does not. It was also found that reading habits positively influenced the pro-environmental behavior of youths. It is hoped that this study will lead to a coherent strategy being undertaken to engage Malaysian youths not only to read but to engender a culture of sustainability and pro-environment behavior.

Keywords

Reading Habits, Pro-Environmental Behaviour, Human Capital, Reading Attitude, Parental Influence, Perceived Stress.

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Malaysia enacted the Eleventh Malaysia Plan (11MP) to achieve sustainable economic growth, with a main strategic thrust on "accelerating human capital development for an advanced nation." Human resource development include providing people with access to education and health care, which are core goals of the United Nations Sustainable Development Goals (SDGs). Reading is one of the main areas of growth that must be included in the strategic development plan for education in a region if governments are serious about accelerating human capital development. This is consistent with our study, which examines the reading habits of Malaysian youths and the conjecture surrounding a 'crisis' among youths and their engagement with reading, to foster a culture of reading to enhance education, focusing on interventions to change human behavior through increased environmental knowledge and awareness, and developing human capital with pro-environmental behavior to assist the nation in meeting sustainability goals and emission reduction targets. Good reading habits enhance critical thinking, communication, and lifelong learning skills and equips students with environmental knowledge and awareness, which promotes ethical integrity by placing a premium on ethical ideals over selfinterest, hence cultivating human capital with pro-environmental behavior. The study explores the extent to which a reluctance to read for academic necessity and leisure affects their knowledge and awareness of the environment, their levels of ethical integrity, and their preparedness for the employment market, which should inform the future policy direction of the government and industry partners.

An increasing amount of attention is being paid to improving reading skills across nations, as the foundation for critical literacy, independent learning, and civic participation (Cunningham & Stanovich, 1998; UNESCO, 2017). Reading opens an important pathway for youths to develop themselves, be self-directed, and empower their social, economic, and civic life (Holden, 2004). It allows these youths to learn "about other people, the history and social studies, the arts, sciences, mathematics, and the other content subjects that must be mastered in school" (Lyon, 1997). Reading is the backbone of a decent education, as education is "a fundamental human right and the bedrock upon which peace and sustainable development can be built." (UNESCO, 2017). This is reinforced by the International Reading Association (Moore et al., 1999), which states succinctly, "Adolescents entering the adult world in the twenty-first century will read and write more than at any other point in human history." They will require sophisticated literacy skills to execute their occupations, manage their houses, participate in civic life, and live their personal lives. They will require literacy to navigate the stream of information that will surround them and fuel their imaginations to construct the world of the future. Their reading capacity can be critical in a complex and sometimes perilous world." We've been taught about critical thinking, managerial, and public speaking abilities, but we rarely mention reading abilities. Self-directed reading is critical for personal, mental, ethical, and professional development. However, the extent and regularity with which Malaysian youth read independently/self-embarked is debatable. Pandian (2000) notes that 20% of Malaysians are 'regular readers' and 80% are 'reluctant readers.' The study also discovered that 80% of Malaysian university students are 'reluctant readers' and that rural students read less than urban students (Ponnudurai & Irawan, 2000). Pandian (2000) cautions that "if this situation is allowed to continue unchecked, Malaysia's future would eventually be determined by hesitant readers, or those who are 'retarded' in terms of knowledge, intelligence, and maturity." There is ample evidence to suggest that Malaysian youth's reading habits have been a problem for many years, exacerbated in recent years by the rising usage of digital gadgets. Malaysia was placed 55th out of 61 countries in a recent study done by Central Connecticut State University (CCSU) in the World's Most Literate Nations (WMLN) list (Asila, 2017). However one must put this study in context, the current Malaysian literacy rate is 94.64% according to the measures set by the Unesco Institute for Statistics (Mustafa, 2018) so we are not saying Malaysians have low levels of literacy. Rather the focus of the study is to investigate the determinants of the reading habits of Malaysians, particularly Malaysian youths, and whether this habit encourages proenvironmental behavior. The study investigates the impact of attitude, parental influence, and perceived stress on reading habits and examines how reading habits influence pro-environmental behavior.

Literature Review

Reading Attitudes and Reading Habits

Recent research has revealed that reading attitude has a detrimental *effect on* reading habits among students of all levels of education. At the tertiary education level, Uslu (2020) and Ahmed (2016) found a significant and positive relationship between learners' reading attitudes and reading habits. However, Ahmed (2016) revealed that the undergraduate students have minimal reading enjoyment, thus resulting in anxiety and difficulties in study. In another study involving 300 undergraduates, Dar et al. (2019), who examined the gender disparity and dynamics of reading habits and attitudes, discovered that female students are more energetic and active in terms of reading habits in comparison to their male counterparts, thus allowing them to lead in academic merit and achievement.

Several studies have postulated a link between reading attitudes and school-going reading habits. Mat Roni and Merga (2019) found that Australian primary school students' attitudes and frequency of recreational reading influence their reading skill level. Their findings showed that regular opportunity for library visitation was essential to enhance children's reading frequency and attitudes. The importance of, the school library to enhance reading and cultivate reading habits among primary school students was also further emphasized by Serna et al. (2017). However, Le et al. (2019) found that students from wealthy families are more likely to buy books, whereas students who grow up in not-rich families borrow books from the library. In the same vein, Nagaraja and Manalan (2016) concluded that secondary school students reported positive attitudes toward reading, especially books, newspapers, and magazines, and the latest e-reading devices do not impact the students. However, Jhang (2014) found a declining trend in the positive reading attitude among the 15-year-old students. He applied a 3-level hierarchical linear model on 470,000 15-year-old students, and their school principals, from 65 countries using a questionnaire designed by the Programme for International Student Assessment (PISA). His findings concluded that the student-teacher relationship, gender, reading habits, and online academic pursuits were positively and negatively associated with reading attitudes. However, the attitudes toward reading increased with better inductive instruction from the school and decreases with largely unqualified teachers. Interestingly, he found that the country's income is statistically significantly negative when associated with a student's positive and negative reading attitudes.

Past studies have studied teachers' perceptions of the reading habits, attitudes, and motivation of school-going students (Rautenbach et al., 2019). Their findings revealed that teachers believe that learners experience academic challenges as they do not habitually engage with texts, have a negative attitude towards the printed text, and read-only to progress academically. One of the most remarkable findings produced by this study is that the teachers themselves embrace negative perceptions about the reading practices of the learners in their classrooms. A study done by Granado (2014) further supports this. His findings emphasized on the importance of teachers' reading habits as their attitude and approach towards reading are vital to the education of new readers in their classrooms. He found that teachers either do not read regularly or read a wide variety of reading texts and do not place great value on books and this could affect their students' education regarding reading, is considered and promoting better attitudes and habits towards reading.

H1: Reading attitude has a significant relationship with reading habits among Malaysian youths.

Parental influence and Reading Habits

Several studies have investigated the link between reading habits and parental influence. Le et al. (2019) explored Vietnam's high school students' academic achievement and their findings revealed that students who love reading books achieved higher grades in STEM-related subjects than those who take no interest in books.

Their study showed that the mother's education level is highly correlated to a student's academic performance. This is further reinforced by another study done by Nagaraja and Manalan (2016) who concluded that mother played a major role in encouraging the students to read. Similarly, Garces-Bacsal and Yeo (2017) examined the time spent by one hundred and twenty five 10- to 12-year-old students enrolled in Singapore's Gifted Education Program (GEP) schools on recreational reading. The study discovered that the top and bottom 10% of pupils, dubbed Highly Avid Readers (HAR) and Less Avid Readers (LAR), had dramatically different ideas about reading, perceptions of themselves as readers, and time spent and parental impacts on reading.

On the other hand, Marjanovič-Umek et al. (2012) discovered a substantial association between 156 young children's storytelling and parent-child joint reading. In addition, the findings indicated that girls told stories using a more significant number of words as compared to the young boys.

Numerous published studies (Davis-Kean & Sexton, 2009; Noria et al., 2009; Smyth et al., 2010) describe the relationship between parental education and children's educational outcomes, demonstrating that parental educational attainment has a significant effect on reading, allowing the student to achieve high academic achievement in school.

H2: Parental influence has a significant relationship with reading habits among Malaysian youths.

Stress and Reading Habits

Bali et al. (2020) found that the stress endured by medical students negatively impacts their academic performance. The pressure is associated with exams and the preparation phase where the students need to understand the course, read many books, and work overload. This was further concurred by Sajid et al. (2015) and Soliman (2014) who found that students at different academic years had significant difference in stress. In addition, high achievers were found to be less stressed as compared to low achievers. Lack of recreation time and difficulty selecting the reading material turned out to be the major stressors. In a related study (Muckle & Lasikiewicz, 2017), animal-assisted activities (AAA) were implemented to buffer psychological problems, attrition, and suicide rates among Singapore undergraduates. The findings revealed that the students experienced significant reductions in state anxiety, systolic, and diastolic BP post AAA compared to a quiet reading comparison session. State self-esteem increased post AAA and, further, was found to moderate the change in anxiety and perceived stress, whereby perceived anxiety was reduced more in those with low state self-esteem and high perceived stress. In the same vein, Kjeldsen et al. (2019) indicated that adolescents facing reading and writing difficulties are lonely and have higher perceived stress, thus leading to low self-rated health. H3: Stress has a significant relationship with reading habits among Malaysian youths.

Reading Habits and Pro-Environmental Behaviour

Universities are crucial in educating the youth, our future leaders, about the importance of sustainability through their curriculum (Bhattacharyya et al., 2020; Kukkonen et al., 2018). This will foster students' critical thinking abilities when confronted with climate change challenges, resulting in good attitudes toward the environment and an increase in their environmental well-being, which results in sustainable and proenvironmental behavior (Janmaimool & Khajohnmanee, 2019). 'However, there is little evidence of success in implementing campus standard reading programs in universities, particularly those focusing on environmental topics, to foster critical thinking and dialogues among students from different disciplines (Kennedy & Boyd, 2018). Previous research has demonstrated the value of reading basic facts about climate change in shifting individuals' psychological reactions and perceptions toward climate issues and policies (Cook & Lewandowsky, 2016; Ma et al., 2019), enabling them to become aware of climate injustice and empowered citizens, motivating them to engage in pro-environmental behavior'. In the same vein, Freestone and o'Toole (2016) found that

childhood reading patterns may be prominent in the development of environmental values. Their findings further demonstrated that the study's adult participants, i.e. the environmental educators, could recall the books they read when they were between the ages of 8 and 11, establishing a link between early reading and pro-environmental behavior. In contrast, grade 9 students' sustainability consciousness and education for sustainable development had a negative effect, whereas for the grade 6 students, there was a small positive effect on their sustainability consciousness (Olsson et al., 2016).

H4: Reading Habits has a significant relationship with pro-environmental behaviour among Malaysian youths.

Method

Design and sample

The cross-sectional and questionnaire-based research design was applied in this study. The self-administered questionnaire was distributed to Malaysian youths aged between 15 and 24 years old across the Malaysia population using the purposive sampling technique. The questionnaire consisted of fourteen sections, and a total of 195 Malaysian youths participated in this study. The sample consisted of 65 males and 130 females, with a majority of the respondents staying in the urban areas (80%), of Chinese ethnicity (74.36%), with most residing in the state of Selangor (32.31%).

Measures

Reading Attitude

The 8-items reading attitude scale was developed by adopting and modifying the items based on Anderson et al. (1985); van Schooten and de Glopper (2002); van Schooten et al. (2004), to assess the attitude of the participants towards reading (e.g., "I enjoy reading"). The response was scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Parental Influence

This study used an eight-item scale derived from the Inventory of Parental Influence (IPI; Campbell (1994)) to assess the participants' parental impact. The replies were measured on a seven-point scale ranging from one (strongly disagree) to seven (strongly agree) (strongly agree). Respondents were asked to rate their level of agreement with each of the eight statements (e.g., "I can rely on my parents to assist me if I run into trouble").

Perceived Stress

A six-item scale was adopted from Cohen et al. (1983), and it is used to measure the respondents' perceived stress. Each item was recorded on a 5-point Likert scale ranging from 0 (never) to 4 (very often).

Reading Habits

The 9-items measure reading habits adapted from Verplanken and Orbell (2003) to assess individuals' essential reading habits. The response was scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Pro-environmental Behaviour

The scale created by Tilikidou et al. (2002) was used to assess respondents' pro-environmental behavior in this study. The scale consisted six items recorded on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Data analysis

The variance-based Partial Least Squares Structural Equation Modelling (SEM) (also known as (PLS-SEM) was employed using the SmartPLS 2.0 software. The analysis employed a two-stage approach, where the measurement model was first examined, followed by the structural model, as suggested by Jörg Henseler et al. (2009). For the assessment of the measurement model, the internal consistency of the constructs was evaluated using the Cronbach's alpha cut-off of more than > 0.7, and the construct reliability was assessed using composite reliability (CR) > being greater than 0.7. To establish convergent validity, the CR should be greater than 0.7, the average variance extracted (AVE) should be higher than 0.5, and less than its respective CR (Fornell & Larcker, 1981; J. Hair et al., 2010; Sharif & Nia, 2018). For discriminant validity, following the Fornell–Larcker criterion (Fornell & Larcker, 1981), the square root of the AVE for each construct should be greater than its correlation with other constructs. In addition, the Heterotrait-monotrait ratio of correlations (HTMT) matrix was also used to assess the discriminant validity, and where all values in the HTMT matrix should be greater than 0.85 (Jörg Henseler et al., 2015). Next, the proposed structural model and hypothesis were assessed using bootstrapping technique with 2,000 replications.

Results

The Partial Least Squares-Structural Equation Modeling (PLS-SEM) approach was used to test the study's hypotheses. PLS-SEM has the advantage of handling formative constructs, small sample numbers and being appropriate for evaluating relatively new measurement models. Tenenhaus et al. (2005) and Jorg Henseler et al. (2011) discovered that PLS-SEM may analyze empirical models incorporating both reflective and formative constructs. Our study's sample size was deemed sufficient to meet the desired statistical power (Hair et al., 2013). The PLS technique was used to estimate the path coefficients, and the hypotheses were tested through bootstrapping with 2000 samples, as recommended by Becker et al. (2012).

The non-parametric evaluation criteria and bootstrapping procedures were used to determine the validity and reliability of the PLS-SEM measurement model. The measurement model was evaluated in this study using internal consistency (composite reliability), reliability indicators, convergent validity (average variance extracted), and discriminant validity. The measuring model assesses the constructs' convergent and construct validity (Pedhazur & Schmelkin, 1991). Convergent validity is evaluated to determine whether the many items accurately measure the construct. This was accomplished by examining the composite reliability, the Average Variance Extracted (AVE), the item factor loadings (Fornell & Larcker, 1981), and the significance of the outer loadings (Gefen & Straub, 2005). The validity of the measures employed in this study was confirmed by testing the measurement and structural models. The measurement model defines the underlying links between the observed variables and theoretical constructs. The results of the measurement model assessment are shown in Table 1, where each construct's Composite Reliability, Cronbach's alpha, and Average Variance Extracted (AVE) are summarized. The constructs of the measurement model include attitude, parental influence, perceived stress, reading habits, and pro-environmental behavior, with the measurement model properties shown in Table 1 affirming the validity of the overall model specification. The Cronbach Alpha values and the Composite Reliability values are above the Fornell and Larcker (1981) acceptable threshold level of 0.7.

Table 1: *Measurement Model: Convergent Validity*

	AVE	Composite Reliability	R Square	Cronbach's Alpha
Attitude	0.68	0.94		0.93
Parental Influence	0.55	0.91		0.88
Pro-Environmental Behaviour	0.51	0.86	0.201	0.82
Reading Habits	0.72	0.95	0.609	0.94
Perceived Stress	0.63	0.91		0.89

The following thresholds were met to confirm convergent validity: First, all factor loadings exceeded 0.5, as per Gefen and Straub (2005)'s recommendation; second, the CRs ranged from 0.86 to 0.95, all exceeding 0.7 as recommended by Nunnally and Bernstein (1994); and third, the AVE ranged from 0.51 to 0.72, all greater than 0.5, as suggested by Chin (1998); J. F. Hair et al. (2010) and Fornell and Larcker (1981). As a result, the findings demonstrate the existence of convergent validity. The model reveals that all constructs have internal consistency and reliability, as indicated by the composite reliability scores. This is because the multi-items for each construct unambiguously quantify the same definition as the construct itself (J. F. Hair et al., 2010). The measurement model requires both the convergent validity and the construct/discriminant validity to be assessed and confirmed. The construct or discriminant validity measures the degree to which the items of a particular scale measure only the construct they should measure (Whitley, 2002). Table 2 reveals the results of the measurement model's discriminant validity.

Table 2: Measurement Model: Construct/Discriminant Validity

	Attitude	Parental	Pro-Environmental	Reading	Stress	
	Atmude	Influence	Behaviour	Habits	oits	
Attitude	0.827					
Parental Influence	0.248	0.739				
Pro-Environmental Behaviour	0.469	0.373	0.711			
ReadingHabits	0.770	0.304	0.448	0.847		
Stress	0.272	0.123	0.243	0.173	0.795	

Table 2 reveals that the correlation values estimated between the factors are all less than the square root of AVE, indicating adequate discriminant validity as recommended by Jörg Henseler et al. (2015). Confirming discriminant or construct validity is critical since models are built on constructs that contain items that must be able to distinguish or discriminate one construct from another. The five constructs in this model are unique from one another, supporting the outer model's discriminant validity and bearing on the subsequent research hypotheses.

With the measurement model being confirmed, the bootstrapping of 2000 samples was carried out to analyze the structural model. The structural model investigates the causal relationships between external and endogenous constructs. As shown in Table 3, the structural model results reveal that attitude and parental influence are significant predictors of reading habit, while perceived stress does not significantly determine reading habits.

Table 3: Structural Model: Path Estimates

	Hypotheses	Beta	S. Error	T-Statistic	Decision
H1	Attitude -> Reading Habits	0.752	0.066	11.405***	Supported
H2	Parental Influence -> Reading Habits	0.123	0.063	1.96**	Supported
Н3	Perceived Stress -> Reading Habits	-0.047	0.073	0.596	Not Supported
H4	Reading Habits -> Pro-Environment Behaviour	0.448	0.078	6.104***	Supported

^{***} p-value < 0.01; ** p-value < 0.05

Reading habits was found to be a significant factor determining pro-environmental behavior. The t-statistics in Table 3 indicate the significance of the path coefficients in the structural model. In contrast, the R-square values of 0.609 and 0.201 in Table 1 indicate the percentage variance in reading habits explained by their predictors (attitude, parental influence, and perceived stress) and the percentage variance in pro-environmental behavior explained by its predictor reading habits, respectively. ,describe As far as the reading habits model is concerned, 60.9% of the variance in reading habits was explained by its significant predictors, attitude and parental influence, indicating that the model has predictive power.

Hypotheses 1 and 2 are supported for the reading habits model, while hypothesis 3 is not supported, as perceived stress (standardized estimate = -0.047, p > 0.05), is not a significant determinant of reading habit, while attitude (standardized estimate = 11.405, p < 0.05) and parental influence (standardized estimate = 1.96, p < 0.05) significantly explain reading habits. Attitude is the most significant factor influencing reading habits, followed by parental influence. A positive attitude towards reading provides an extremely important stimulus in encouraging reading habits (Briggs, 1987). It is very difficult to force anyone to read, but it becomes very easy to develop positive reading habits with the right attitude. With a positive attitude towards reading, reading habits can be enhanced so that people develop sustainable reading habits. In a world where many do not develop good reading habits, amassing knowledge could be affected. Students with a good reading attitude tend to be more successful in their academic performance. The positive influence of reading attitude on reading habits aligns with the findings of Memis and Kandemir (2019) and Park (2020).

Parental influence was also found to positively influence reading habits, indicating the role parents play in inculcating good reading habits among the students. Parents are the first and foremost strength to boost and stimulate learning potential by developing the constant habit of reading among their children. This is especially true when the parents are avid readers or educated, as Kaur et al. (2012) discovered that parental education level has a significant effect on reading habits for disadvantaged readers, while the combined education level of the parents has a significant interaction effect on knowledge purpose readers. A further investigation into the interaction effect suggested that working women (with a bachelor's or master's degree) play important roles in shaping their children's reading habits in terms of information acquisition.

It is interesting to discover that reading habits positively influence pro-environmental behavior. This is such an important finding, as it places a premium emphasis on the very habit that every individual must inculcate to transform human behavior towards being pro-environment.

Discussion

The current study was carried out to find the relationship between attitude, parental influence, and perceived stress on the reading habits of Malaysian youths. Additionally, the study investigated the moderating effect of reading habits on pro-environmental behavior. The findings indicated that youth reading habits were positively and strongly linked with attitude and parental influence. However, perceived stress was found to be insignificant in explaining reading habits. Reading is a vital learning process that promotes social awareness and critical thinking (Tran et al., 2019). Positive attitudes towards reading can be cultivated so that individuals acquire long-term sustainable reading habits that contribute to their academic success. This beneficial effect of reading attitude on reading habits not only enables students to demonstrate strong reading abilities (Walker et al., 2021), but also fosters the development of humane attitudes (Arbour et al., 2009) characterized by kindness, empathy, and a pro-animal/environmental attitude. Youth reading attitudes was found to be strongly related to their home literacy environment, their parents' reading attitudes, and the number of books they read (Altun et al., 2021). The authors also discovered that mothers have a critical influence in developing their children's reading attitudes. This is reinforced by Stephens et al. (2015), who asserted that children share their parents' reading attitudes and behaviors. To instill positive reading habits, various stakeholders must make a concerted effort to undertake programs and policies that strengthen parents' reading attitudes and behaviors as potential levers for fostering children's interest and engagement in reading. There must be a concerted effort to establish a strong collaboration between government, education institutions, and family in order to encourage long-term reading habits among youths. The government must take on a more prominent role in supporting education for long-term growth by providing support and fundings for more library facilities, as well as improving the quality of library services, as these measures are critical in achieving the aims of reading community of youths.

Additionally, education policymakers must rethink how they approach various learning areas to foster positive reading attitudes, hence increasing student engagement and academic achievement. This study also establishes the critical role of reading habits in shaping pro-environmental behavior among youths. Environmental concerns such as global warming, urban air pollution, water scarcity, environmental noise, and biodiversity loss all threaten the environment's sustainability today, with human behavior being the basis of these issues (Fang, 2018). Inspiring youths' curiosity is critical for their future environmental cognition. Crucial thinking skills, built by good reading habits, are critical for resolving environmental concerns, resulting in enhanced well-being and more sustainable and environmentally friendly behavior (Janmaimool & Khajohnmanee, 2019; Otto & Pensini, 2017). Additionally, it educates adolescents about their responsibility to nature, pushing them to be more environmentally conscious through their participation in pro-environmental behaviors (Liu & Lin, 2015), ensuring that the goal of environmental preservation may be accomplished. These objectives are achievable if parents and educational institutions work to impart useful knowledge and develop attitudes about the environment through the inclusion of environmentally themed literature, subjects, and activities that promote and influence youngsters' environmental behavior. As our future leaders, youth can help conserve and improve the environment by increasing awareness and developing innovative solutions and ideas. Reading increases one's knowledge and understanding of the environment, critical for biodiversity preservation initiatives. Therefore, reading habits must be inculcated in individuals, preferably at a younger age as reading patterns may be prominent in the development of environmental values (Freestone & o'Toole, 2016). In addition, education institutions can take proactive measures to equip learners of all ages with the values, knowledge, and attitudes to help them deal with the interrelated challenges faced by the world, including environmental issues, by developing pro-environmental behavior among the students.

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Reference List

- Ahmed, S. (2016). Reading habits and attitudes of UMSKAL undergraduates. *International Journal of Applied Linguistics and English Literature*, 5(2), 189-201. https://doi.org/10.7575/aiac.ijalel.v.5n.2p.189
- Altun, D., Tantekin Erden, F., & Hartman, D. K. (2021). Preliterate young children's reading attitudes: Connections to the home literacy environment and maternal factors. *Early Childhood Education Journal*, 50, 1-12. https://doi.org/10.1007/s10643-021-01177-2
- Anderson, M. A., Tollefson, N. A., & Gilbert, E. C. (1985). Giftedness and reading: A cross-sectional view of differences in reading attitudes and behaviors. *Gifted Child Quarterly*, 29(4), 186-189. https://doi.org/10.1177%2F001698628502900411
- Arbour, R., Signal, T., & Taylor, N. (2009). Teaching kindness: The promise of humane education. *Society and Animals*, 17(2), 136–148. https://doi.org/10.1163/156853009X418073
- Asila, J. (2017). Low literacy rank because Malaysians don't want to read, say educationists. https://www.themalaysianinsight.com/s/20195
- Bali, H., Rai, V., Khanduri, N., Tripathi, R., Adhikari, K., & Sapkota, B. (2020). Perceived stress and stressors among medical and dental students of Bhairhawa, Nepal: a descriptive cross-sectional study. *JNMA: Journal of the Nepal Medical Association*, 58(226), 383–389. https://dx.doi.org/10.31729%2Fjnma.4911
- Becker, J.-M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: guidelines for using reflective-formative type models. *Long range planning*, 45(5-6), 359-394. https://doi.org/10.1016/j.lrp.2012.10.001

- Bhattacharyya, A., Biswas, K., & Moyeen, A. (2020). Determinants of Pro-environmental Behaviours—A Cross Country Study of Would-be Managers. *Australasian Accounting, Business and Finance Journal*, 14(2), 51-71. http://dx.doi.org/10.14453/aabfj.v14i2.5
- Briggs, L. (1987). A poor attitude: A deterrent to reading improvement. *Reading Horizons: A Journal of Literacy and Language Arts*, 27(3), 202-208. https://scholarworks.wmich.edu/reading_horizons/vol27/iss3/7
- Campbell, J. R. (1994). Developing cross-cultural/cross-national instruments: Using cross-national methods and procedures. *International Journal of Educational Research*, 21(7), 675-684. https://doi.org/10.1016/0883-0355(94)90040-X
- Chin, W. W. (1998). The partial least squares approach for structural equation modeling. In *Modern methods for business research*. (pp. 295-336). Lawrence Erlbaum Associates Publishers. https://psycnet.apa.org/record/1998-07269-010
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of health and social behavior*, 24(4), 385-396. https://doi.org/10.2307/2136404
- Cook, J., & Lewandowsky, S. (2016). Rational irrationality: Modeling climate change belief polarization using Bayesian networks. *Topics in cognitive science*, 8(1), 160-179. https://doi.org/10.1111/tops.12186
- Cunningham, A. E., & Stanovich, K. E. (1998). What reading does for the mind. *American educator*, 22, 8-17. http://oregonliteracypd.uoregon.edu/sites/default/files/topic documents/16-R1-Cunningham 0.pdf
- Dar, B. A., Ahmad, S., & Lone, J. A. (2019). Reading habits and attitudes of undergraduate students: A gender based comparative study of government degree college (boys) and government degree college for women, anantnag (J&K). *Library Philosophy and Practice*, 1-13. https://digitalcommons.unl.edu/libphilprac/2351/
- Davis-Kean, P. E., & Sexton, H. R. (2009). Race differences in parental influences on child achievement: Multiple pathways to success. *Merrill-Palmer Quarterly*, 55(3), 285-318. https://www.jstor.org/stable/23096259
- Fang, S.-C. (2018). The influence of parental education on the environmental education of pre-schoolers: A case study of self-designed picture book. *Journal of Baltic Science Education*, 17(2), 187-199. https://www.ceeol.com/search/article-detail?id=966977
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 18(1), 39-50. https://doi.org/10.1177%2F002224378101800104
- Freestone, M., & o'Toole, J. M. (2016). Reminiscence spike in reading recall between the ages of 8–11: The influence of early memories on attitudes and actions. *Cogent Education*, 3(1), 1161099. https://doi.org/10.1080/2331186X.2016.1161099
- Garces-Bacsal, R. M., & Yeo, S. D. (2017). Why and what they read when they don't have to: Factors influencing the recreational reading habits of gifted students in Singapore. *Journal for the Education of the Gifted*, 40(3), 247-265. https://doi.org/10.1177%2F0162353217717035
- Gefen, D., & Straub, D. (2005). A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example. *Communications of the Association for Information systems*, 16(1), 91-109. https://doi.org/10.17705/1CAIS.01605
- Granado, C. (2014). Teachers as readers: a study of the reading habits of future teachers/El docente como lector: estudio de los hábitos lectores de futuros docentes. *Cultura y educación*, 26(1), 44-70. https://doi.org/10.1080/11356405.2014.908666
- Hair, J., Anderson, R., Babin, B., & Black, W. (2010). *Multivariate Data Analysis: A Global Perspective*. Upper Saddle River, NJ: Prentice Hall and Pearson.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. (2010). *Multivariate Data Analysis: Pearson Education*. Upper Saddle River, New Jersey: Pearson Education.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long range planning*, 46(1-2), 1-12. https://doi.org/10.1016/j.lrp.2013.01.001
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43(1), 115-135. https://doi.org/10.1007/s11747-014-0403-8

- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In R. R. Sinkovics & P. N. Ghauri (Eds.), *New Challenges to International Marketing* (Vol. 20, pp. 277-319). Emerald Group Publishing Limited. https://doi.org/10.1108/S1474-7979(2009)0000020014
- Henseler, J., Wilson, B., & Westberg, K. (2011). Managers' perceptions of the impact of sport sponsorship on brand equity: Which aspects of the sponsorship matter Most? *Sport Marketing Quarterly*, 20(1), 7-21. http://hdl.handle.net/2066/95338
- Holden, J. (2004). Creative Reading. London: Demos. https://www.demos.co.uk/files/creativereading.pdf
- Janmaimool, P., & Khajohnmanee, S. (2019). Roles of environmental system knowledge in promoting university students' environmental attitudes and pro-environmental behaviors. *Sustainability*, *11*(16), 4270. https://doi.org/10.3390/su11164270
- Jhang, F.-H. (2014). The influences of inductive instruction and resources on students' attitudes toward reading: evidence from PISA 2009. *Educational Research and Evaluation*, 20(5), 386-410. https://doi.org/10.1080/13803611.2014.966114
- Kaur, H., Rasiah, R. R. V., & Nagaratnam, S. (2012). The impact of parental influence on the reading habits of Gen-Y adults: a generalised linear model analysis. *International Journal of Education Economics and Development*, 3(1), 63-78. http://dx.doi.org/10.2139/ssrn.1869420
- Kennedy, E. H., & Boyd, A. (2018). Gendered citizenship and the individualization of environmental responsibility: evaluating a campus common reading program. *Environmental Education Research*, 24(2), 191-206. https://doi.org/10.1080/13504622.2016.1217396
- Kjeldsen, M.-M. Z., Stapelfeldt, C. M., Lindholdt, L., Lund, T., & Labriola, M. (2019). Reading and writing difficulties and self-rated health among Danish adolescents: cross-sectional study from the FOCA cohort. *BMC public health*, *19*(1), 1-9. https://doi.org/10.1186/s12889-019-6931-x
- Kukkonen, J., Kärkkäinen, S., & Keinonen, T. (2018). Examining the relationships between factors influencing environmental behaviour among university students. *Sustainability*, 10(11), 4294. https://doi.org/10.3390/su10114294
- Le, T.-T.-H., Tran, T., Trinh, T.-P.-T., Nguyen, C.-T., Nguyen, T.-P.-T., Vuong, T.-T., Hoang, P.-H. (2019). Reading habits, socioeconomic conditions, occupational aspiration and academic achievement in Vietnamese junior high school students. *Sustainability*, *11*(18), 5113. https://doi.org/10.3390/su11185113
- Liu, S.-C., & Lin, H.-s. (2015). Exploring undergraduate students' mental models of the environment: Are they related to environmental affect and behavior? *The Journal of Environmental Education*, 46(1), 23-40. https://doi.org/10.1080/00958964.2014.953021
- Lyon, R. (1997). *Statement before the Committee on Education and Workforce*. U.S. House of Representatives. http://mirror.apa.org/ppo-OLD/lyon.html
- Ma, Y., Dixon, G., & Hmielowski, J. D. (2019). Psychological reactance from reading basic facts on climate change: The role of prior views and political identification. *Environmental Communication*, 13(1), 71-86. https://doi.org/10.1080/17524032.2018.1548369
- Marjanovič-Umek, L., Fekonja-Peklaj, U., & Podlesek, A. (2012). Parental influence on the development of children's storytelling. *European Early Childhood Education Research Journal*, 20(3), 351-370. https://doi.org/10.1080/1350293X.2012.704760
- Mat Roni, S., & Merga, M. K. (2019). The influence of extrinsic and intrinsic variables on children's reading frequency and attitudes: An exploration using an artificial neural network. *Australian Journal of Education*, 63(3), 270-291. https://doi.org/10.1177%2F0004944119880621
- Memis, A. D., & Kandemir, H. (2019). The Relationship between the Study Habits and Attitudes and Metacognitive Reading Comprehension Self-Awareness, Reading Comprehension, Reading Attitudes. *World Journal of Education*, *9*(4), 133-145. https://doi.org/10.5430/wje.v9n4p133
- Moore, D. W., Bean, T. W., Birdyshaw, D., & Rycik, J. A. (1999). Adolescent literacy: A position statement. *Journal of Adolescent & Adult Literacy*, 43(1), 97-112. https://www.jstor.org/stable/40017055
- Muckle, J., & Lasikiewicz, N. (2017). An exploration of the benefits of animal-assisted activities in undergraduate students in Singapore. *Asian Journal of Social Psychology*, 20(2), 75-84. https://doi.org/10.1111/ajsp.12166

- Mustafa, Z. (2018). Boosting the reading habit. https://www.nst.com.my/education/2018/07/394232/boosting-reading-habit
- Nagaraja, S., & Manalan, J. (2016). Reading habits and reading preferences of secondary school students. International journal of Advanced Research in Management and Social Sciences, 5(9), 73-87. https://garph.co.uk/IJARMSS/Sep2016/7.pdf
- Noria, C. W., Borkowski, J. G., & Whitman, T. L. (2009). Parental influences on self-regulation and achievement in children with adolescent mothers. *European Journal of Developmental Psychology*, *6*(6), 722-745. https://doi.org/10.1080/17405620801969734
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). New York: McGrawHill. https://books.google.com.pk/books?id=_6R_f3G58JsC
- Olsson, D., Gericke, N., & Chang Rundgren, S.-N. (2016). The effect of implementation of education for sustainable development in Swedish compulsory schools—assessing pupils' sustainability consciousness. *Environmental Education Research*, 22(2), 176-202. https://doi.org/10.1080/13504622.2015.1005057
- Otto, S., & Pensini, P. (2017). Nature-based environmental education of children: Environmental knowledge and connectedness to nature, together, are related to ecological behaviour. *Global Environmental Change*, 47, 88-94. https://doi.org/10.1016/j.gloenvcha.2017.09.009
- Pandian, A. (2000). A study on readership behaviour among multi-ethnic, multi-lingual Malaysian students. *The International Journal of Learning: Annual Review*, 8(1), 5-9. https://doi.org/10.18848/1447-9494/CGP/v08/44606
- Park, A. Y. (2020). A comparison of the impact of extensive and intensive reading approaches on the reading attitudes of secondary EFL learners. *Studies in Second Language Learning and Teaching*, 10(2), 337-358. https://www.ceeol.com/search/article-detail?id=877272
- Pedhazur, E., & Schmelkin, L. (1991). Artifacts and pitfalls in research. In *Measurement, Design, and analysis: An Integrated Approach* (pp. 234-241). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Ponnudurai, P., & Irawan, M. K. (2000). An exploratory study of the reading habits of urban Malaysians and its impact on academic achievement. *International Journal of Engineering & Technology*, 7(3.25), 263-267. http://dx.doi.org/10.14419/ijet.v7i3.25.17559
- Rautenbach, E., Olifant, T., & Cekiso, M. (2019). Teachers' perceptions of Grades 8–10 English First Additional Language learners' reading habits, attitudes and motivation. *Reading & Writing-Journal of the Reading Association of South Africa*, 10(1), 1-11. https://hdl.handle.net/10520/EJC-1f61264588
- Sajid, A., Ahmad, T., & Khalid, T. (2015). Stress in medical undergraduates; its association with academic performance. *Bangladesh Journal of Medical Science*, *14*(2), 135-141. https://doi.org/10.3329/bjms.v14i2.21815
- Serna, M., Rodríguez, A., & Etxaniz, X. (2017). Biblioteca escolar y hábitos lectores en los escolares de Educación Primaria. *Ocnos: Revista de estudios sobre lectura, 16*(1), 18-49. http://dx.doi.org/10.18239/ocnos_2017.16.1.1205
- Sharif, S. P., & Nia, H. S. (2018). Structural equation modeling with AMOS. Artin Teb.
- Smyth, E., Whelan, C. T., McCoy, S., Quail, A., & Doyle, E. (2010). Understanding parental influence on educational outcomes among 9 year olds in Ireland: The mediating role of resources, attitudes and children's own perspectives. *Child Indicators Research*, *3*(1), 85-104. https://doi.org/10.1007/s12187-009-9051-9
- Soliman, M. (2014). Perception of stress and coping strategies by medical students at King Saud University, Riyadh, Saudi Arabia. *Journal of Taibah University Medical Sciences*, 9(1), 30-35. https://doi.org/10.1016/j.jtumed.2013.09.006
- Stephens, M., Erberber, E., Tsokodayi, Y., Kroeger, T., & Ferguson, S. (2015). Is Reading Contagious? Examining Parents' and Children's Reading Attitudes and Behaviors. Policy Brief No. 9. *International Association for the Evaluation of Educational Achievement*. https://www.researchgate.net/profile/Teresa-Kroeger/publication/299346391
- Tenenhaus, M., Vinzi, V. E., Chatelin, Y.-M., & Lauro, C. (2005). PLS path modeling. *Computational statistics & data analysis*, 48(1), 159-205. https://doi.org/10.1016/j.csda.2004.03.005
- Tilikidou, I., Adamson, I., & Sarmaniotis, C. (2002). The measurement instrument of ecologically conscious consumer behaviour. *Medit*, *1*(4), 46-53. https://www.academia.edu/download/38115495/9 Tilikidou I. Adamson I. and Sarmaniotis C. 2002..pdf

- Tran, T., Le, T.-T.-H., Nguyen, T.-T., Pham, A.-G., Vu, T.-H., Nguyen, M.-H., . . . Ho, M.-T. (2019). The relationship between birth order, sex, home scholarly culture and youths' reading practices in promoting lifelong learning for sustainable development in Vietnam. *Sustainability*, 11(16), 4389. https://doi.org/10.3390/su11164389
- UNESCO. (2017). Reading the past, writing the future: fifty years of promoting literacy. Paris, France: United Nations Educational, Scientific and Cultural Organization.
- Uslu, M. E. (2020). Transferring L1 reading attitudes to EFL reading habits. *Journal of Language and Linguistic Studies*, 16(1), 30-41. https://dergipark.org.tr/en/pub/jlls/article/712635
- van Schooten, E., & de Glopper, K. (2002). The relation between attitude toward reading adolescent literature and literary reading behavior. *Poetics*, 30(3), 169-194. https://doi.org/10.1016/S0304-422X(02)00010-4
- van Schooten, E., De Glopper, K., & Stoel, R. (2004). Development of attitude toward reading adolescent literature and literary reading behavior. *Poetics*, 32(5), 343-386. https://doi.org/10.1016/j.poetic.2004.07.001
- Verplanken, B., & Orbell, S. (2003). Reflections on past behavior: a self-report index of habit strength 1. *Journal of applied social psychology, 33*(6), 1313-1330. https://doi.org/10.1111/j.1559-1816.2003.tb01951.x
- Walker, A., Bower, J., & Kettler, T. (2021). Preadolescent advanced readers: Exploring attitudes, beliefs, and behaviors. *Gifted Child Today*, 44(2), 68-82. https://doi.org/10.1177%2F1076217520940756
- Whitley, B. (2002). Principles of research in behavioral science (2nd ed.). New York, NY: McGraw-Hill.