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DOES THE HOME LITERACY ENVIRONMENT AFFECT CRITICAL THINKING SKILLS? SURVEY ON STUDENTS IN RURAL, URBAN, AND INDUSTRIAL AREAS

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Abstract

As one of the 21st century skills, critical thinking skill should be mastered by the students. Home as the first learning service for children is very important to support learning achievement. The current study aimed to investigate the level of students' critical thinking skill (CTS) and their home literacy environment (HLE). In addition, this study also was to find out whether there is any effect of students' HLE towards their CTS. A questionnaire was used for collecting the data of students' HLE, and Cornell Critical Thinking Test (CCTT) was adopted for piling up students' CTS. The instruments were distributed to 591 senior high school students whom were used as the sample. A comparative study and regression analysis were used to analyse the data. The results of this study showed that the students' level of CTS was categorized at a low level, and the students' HLE was categorized at medium level. Moreover, the level of students' CTS in the rural, urban and industrial areas were not different. The last result of this study showed that students' CTS was not significantly affected by their HLE.

Keywords: Critical Thinking Skill; Home Literacy Environment; Survey.

1. INTRODUCTION

Literacy is the gate of all essential knowledge in the world. Most of the knowledge is available in written form. Therefore, without mastering reading skills, a person would not obtain much knowledge. In this case, home literacy environment is crucial for improving students' literacy (Kennedy & International, n.d.; Konishi et al., 2018; Niklas & Schneider, 2013). The home literacy environment (HLE) plays an essential role in nurturing students' cognition (Lehrl et al., 2020).

As stated by Rahman (2019) the mental process that involves critical thinking, problem solving, reasoning, and learning is defined as the cognition. Many researchers prior this research proved that HLE positively impacted students' cognition (Silinskas et al., 2012; Davoodi, 2017) . Students with good HLE will motivate them to read and write more often. In that case, their reading and writing skills will be better and they could process information and convey written ideas effectively. As stated earlier, as students are motivated to read more often, their critical thinking skills are nurtured. It happens because that by reading more complex material, it helps their critical thinking upgraded as that skill is important in either facing academic and daily life problems.

There are ways that identified that could improve it such as by improving their vocabulary (Duursma, 2014) , improving reading and writing skills (Kalia & Reese, 2009) , improving critical thinking and problem-solving skills improving creativity and imagination, and improving academic performance Besides, in order to create good HLE, parents and family members involvement are important. Parents and other family

members that have good literacy habits could motivate their children so that they could read and discuss any reading materials together.

When students are exposed to various reading materials such as books, magazines, and newsletter, it is possible for them to improve their vocabulary and phrases (Kalia & Reese, 2009). Students whose vocabulary mastery is improved could understand more complex texts and paragraphs. A good HLE can be determined by several criteria defined by Myrtil et al., (2019) namely: a) availability of various reading materials, b) ease of access to reading materials, c) parents and family members role, d) reading activities together, e) reading material discussions, f) noise-free environment, g) frequent library visitation and h) appreciate children's reading achievement. From the points mentioned, these could significantly improve the HLE level while the HLE directly and positively influence their critical thinking skills.

However, not every reading material could improve students' critical thinking skills. There are criteria for which critical thinking could be developed by reading material namely: a) reading materials that trigger students to think critically (Hollis, 2021; Heidari, 2020) such as reading materials that expose students to different ideas and points of view. Students will most likely reminisce, analyse and evaluate from various perspectives. b) students that engage in discussion regarding the reading materials. In this case, parental and family members' involvement is important. When the discussion is engaged, they organize and compose new ideas then they express their ideas and in the end, they create conclusions (Dwyer, 2014), c) as the discussion is ongoing, students often ask questions. Reading material that improves critical thinking skills raises questions. By combining elements previously stated in HLE improvement, a good habit of thinking critically would be shaped gradually.

However, children in a rural area whose parents' income are low has been identified consistently experiencing a limited level of home literacy environment compared to children who live in urban area (Miller et al., 2019; Zhang et al., 2021). It seemed due to the problem, the rural area children suffered academically low performance. Inadequate infrastructures and facilities in rural areas as well as a lack of education level make the problem worse. In this research, the researchers investigated the effect of HLE towards students' critical thinking skills, and presented the following research questions:

1. How is the home literacy environment in the three different areas?
2. How is the students' critical thinking in the three different areas?
3. Is there any difference in students' critical thinking in the three areas?
4. Is there any effect of a home literacy environment on students' critical thinking?

2. LITERATURE REVIEW

Home Literacy Environment

The environment in which humans live plays an important role in helping the growth and development of each of its members, especially for their children. Furthermore, literacy means a person's ability to be literate and understand simple writing (Boeriswati, 2012). literacy is what people do by reading, writing and texts in real-world contexts and why they do it (Perry, 2012). The home literacy environment implies that it is a place to live in which social conditions are created to support reading activities

(Davoodi, 2017) writing and other activities related to text (Yeo et al., 2015). The home literacy environment greatly influences children's success in learning at school (Ciping et al., 2015; Ford, 2013; Memon et al., 2010; Niklas & Schneider, 2017). Many researchers also suggested that good HLE could improve children's ability in the language aspect (Hamilton et al., 2016; Puglisi et al., 2017; Wood et al., 2018)

The concepts of HLE have been developed continually. It represents how families could contribute to their children's cognitive development (Cheung et al., 2020; Van Vechten, 2013). The construct that involve behaviour, activities and opportunities that given by the family which support their children's development of language and literacy (Brown et al., 2013; Gottfried et al., 2015; McGeown et al., 2015). Scholars have determined that there are active HLE and passive HLE (Baroody & Diamond, 2012). The active HLE involved direct participations of the children at home in and the exposure of literacy activities such as reading storybook together. In contrast, passive HLE refers to indirect activities such as observation of the children and parental belief of literacy.

However, successful HLE is the active HLE which is a stronger predictor Buvaneswari & Padakannaya, (2017). In this case, the writers focused on the activities and resources in measuring HLE especially defining the concept by involving four active dimensions theoretically namely a) parents-children interaction, b) children's interest in literacy, c) library utilization, and d) access to reading materials. (Myrtil et al., 2019). Based on the experts' statements above, it is concluded that HLE depends on parental involvement due to the parents that support and fulfil their children's source of reading material. Parental habits also motivate the children to imitate their parents such as reading and writing. Parents also could provide access to affordable reading materials. This factor also affects the children's interest in literacy. Various reading material that is available at home, especially interesting ones could motivate children to read more often.

Critical Thinking

Critical thinking is one of the competencies that is necessary to be mastered in this century (Ehlers & Kellermann, 2019). Many researchers defined the critical thinking. Deal & Pittman, (2009) stated that critical thinking as a purposeful and reasoned thinking. Meanwhile, Lim (2011) stated that the main components of critical thinking involve analysis, evaluation and construction of arguments. Moreover, Abrami et al., (2008) proposed that critical thinking as the ability to engage in purposeful, self-regulating assessments that include thinking about important issues in disciplinary fields as well as in the social, political and ethical challenges of everyday life.

Critical thinking skills are important for everyone, especially for students. Students who have high critical thinking skills will significantly improve their academic abilities (D'Alessio et al., 2019). Likewise, students' reading skills will be better for those who have high critical thinking skills (Yousefi & Mohammadi, 2016). This shows that there is a relationship between critical thinking skills and one's reading comprehension skills (Aloqaili, 2012; Kamgar & Jadidi, 2016)

The skills needed to think critically in practicing social activities have been identified by clearly stating the problem; understand meaning; thinking through all the implications (Falcione et al., 1994), identify models, theories, and paradigms that inform thinking; define gaps, values, and assumptions; see the problem from various perspectives (Mason, 2008). Besides that, in today's all-digital life, the ability to think

critically is needed so that someone can use it properly according to goals and rules. Gainer, (2012) stated that critical thinking is the foundation for digital literacy. Digital literacy skills involve a person's critical attitude about what digital literacy activities should do.

A person's critical thinking ability is not suddenly attached to himself and develops by itself. Critical thinking ability is considered as an ability that can be learned and can be trained through certain training (Shaw et al., 2019). There are factors that influence it so that each person will have different critical thinking skills from one another. One of the factors that can influence it is the family's socioeconomic status (Ebert et al., 2017; Picollo et al., 2016) and home literacy environment (Spence, 2012; Wang et al., 2020). There are several aspects in critical thinking namely: a) Induction thinking skill, 2) deduction thinking skill, observation and credibility, and d) assumption.

3. METHOD

This research will be conducted at state senior high schools in Tangerang District, Banten Province, Indonesia. Tangerang Regency consists of 29 sub-districts, which are further divided into a number of 246 villages and 28 sub-districts. Tangerang Regency has 30 State Senior High Schools spread across 29 sub-districts. The designation of public high school as a research location aims to avoid bias in the future research because private schools in Tangerang Regency are very heterogeneous, especially in terms of facilities and infrastructure as well as accreditation. In addition, private schools are open to anyone regardless of zoning regulations.

This study uses a quantitative method with a correlational design to examine the effect of home literacy environment (HLE) as independent variable on critical thinking as dependent variable, and comparison study to examine the difference between the three groups (rural, urban, and industrial areas). The regression model used is multiple regression. The type of data needed in this study is primary data that comes from state high school students in Indonesia.

The sample size used in this study was 394 students from the target population. However, the researchers determined an additional sample size of 10% or 39.42 = 39 samples. Determination of this additional sample aims to assist researchers, if there are data that are outliers or incomplete. Furthermore, in conducting cluster sampling the researcher determined 3 (three) clusters of school areas. The number of clusters is determined based on the topography of the growth area.

The data collecting technique which is used in this research is using questionnaire and test. The questionnaire is used to collect data of HLE and test is used to collect students' critical thinking. The questionnaire of HLE consists of five dimensions which are physical environment, parent reading habit, child reading habit, parent-child interaction, and parental beliefs about literacy. While the test of critical thinking consists of four indicators which are induction, deduction, observation and credibility, and assumption.

4. DISCUSSION AND CONCLUSION

The purpose of this research is to determine the effect of a Home Literacy Environment (HLE) on the students' Critical Thinking (CT). Within this research, the author undertook a survey, analysing data, and interpreting the result. The researcher employed HLE as the independent variable that can affect CT. The researcher

calculated the results of the collected data using SPSS version 25. Finally, the result is conveyed and discussed descriptively.

Research Question 1: How is the home literacy environment in the three different areas?

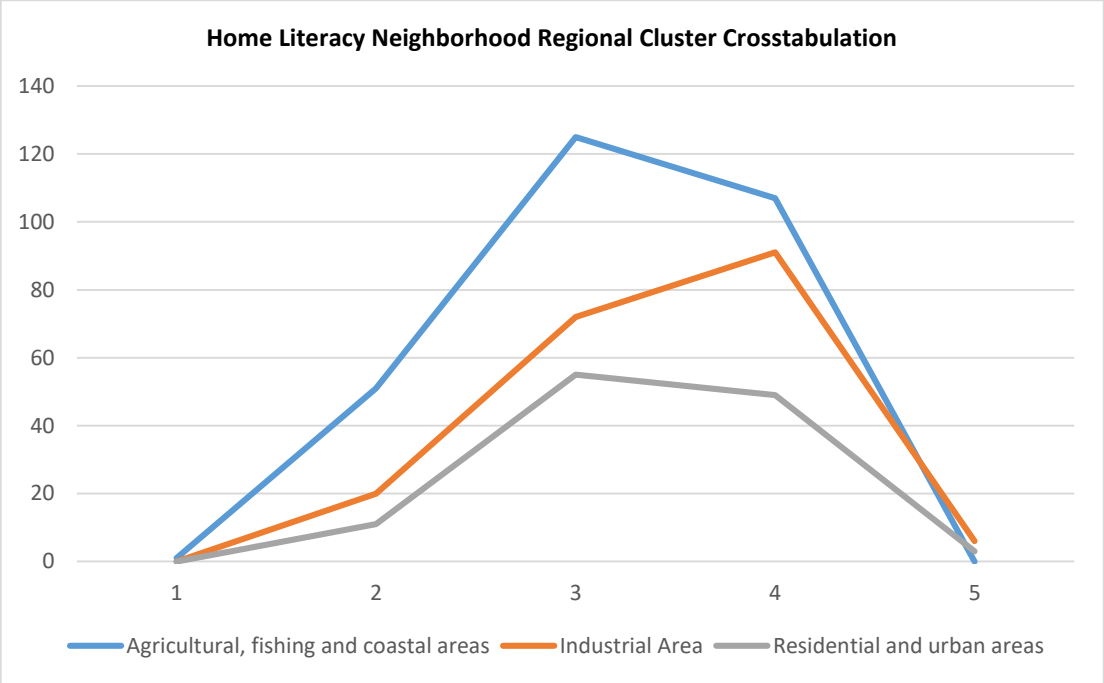

Figure 1: The Data of HLE

A total of 284 student samples in cluster A (Rural Area) revealed that the HLE in the "very unmet" category was <1% (n=1) and 18% (n=51) "unmet". Meanwhile, 44% (n=125) were considered moderately fulfilled and 37.7% (n=107) "fulfilled". In this area, it can be seen that there were no students whose HLE fell into the very fulfilled category.

In cluster B (Industrial Area), 0 students out of 189 fell into the "very unmet" category and 20 students (10.6%) had their literacy resources "unmet". Moreover, 72 students (38%) were "moderately met", 91 students (48%) were "met" and 6 students (3%) were "very met".

Cluster C (Urban Area) revealed the results that no students had very unmet availability of literacy resources and only 9% of 118 students (n=11) had unmet availability. Again, 46.6% of students (n=55) were "moderately fulfilled", 41.5% of students (n=49) were "fulfilled" and 2.5% of students (n=3) were "very fulfilled".

Based on the detailed description above, it can be concluded that in cluster A, almost 19% of students from the total sample (n=52) did not have access to literacy environment at home. Meanwhile, in cluster B, only 10.6% of students had unmet access to literacy environment at home. In cluster C, the rate of unmet access to literacy resources was very low compared to the other two clusters at 9% of the sample. It can be seen that the agriculture, fisheries and coastal clusters compared to urban areas show inequalities. In the area, the number of students without access to literacy resources is almost 5 times the number of students in the same category in urban and residential areas.

Research Question 2: How is the students' critical thinking in the three different areas?

Thinking ability was assessed based on four aspects: induction, deduction, observation and credibility, and finally assumption identification. Overall, the level of critical thinking skills in senior high school students can be seen below.

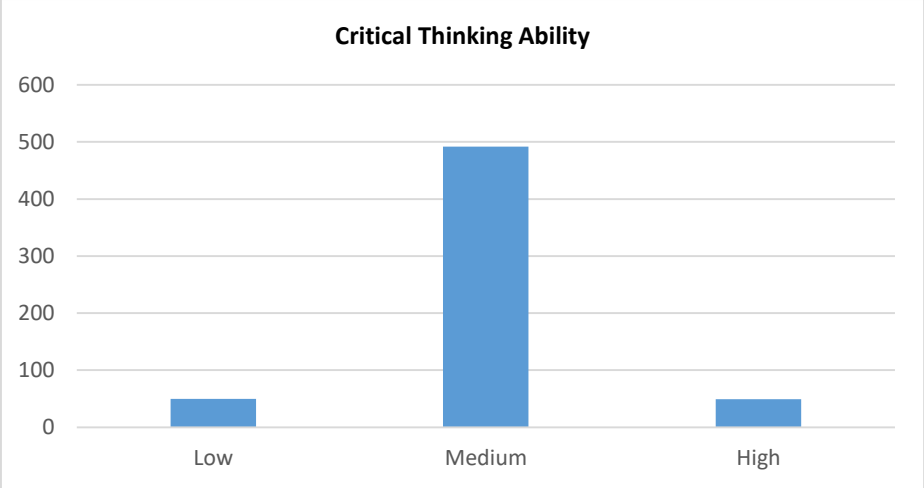

Figure 2: The Data of CTA

Based on the above references, most senior high school students in the whole areas have a "medium" level of critical thinking skills with a percentage of 83.2% (n=492). Meanwhile, the levels of critical thinking skills in the "low" and "high" categories were 8.5% (n=50) and 8.3% (n=49) respectively.

Meanwhile the description of each area as shown in the figure 3 below, cluster A shows percentages of 5.6% (n=16), 85.2% (n=242) and 9.2% (n=26) in the "low", "medium" and "high" categories respectively. Cluster B showed percentages of 7.9% (n=15), 84.1% (n=159) and 7.9% (n=15) respectively. Moreover, in cluster C, the level of critical thinking skills classified as "low", "medium" and "high" amounted to 16.1% (n=19), 77.1% (n=91) and 6.8% (n=8).

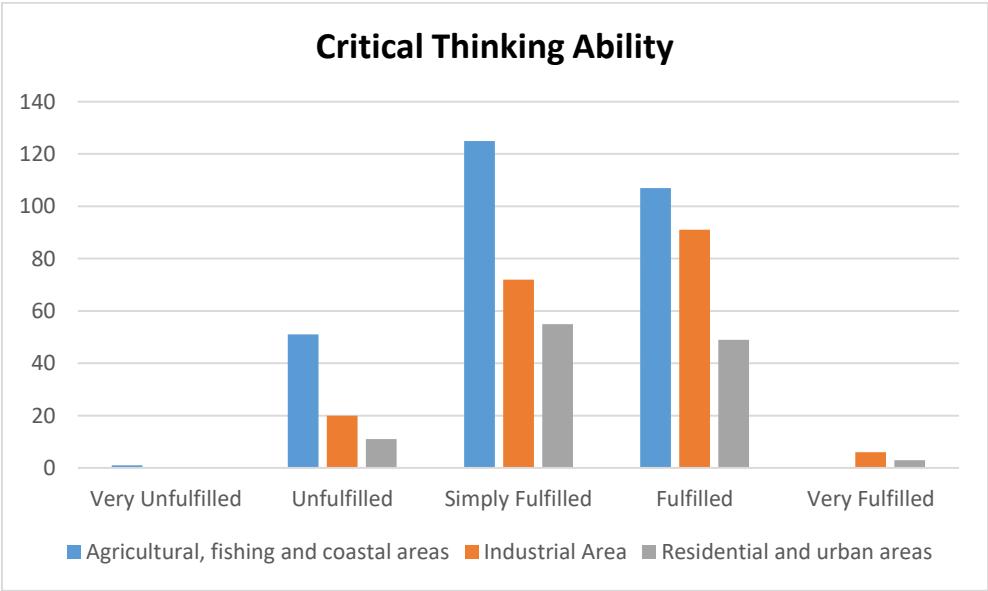

Figure 3: The Data of CT

A finding in the above description is that the level of critical thinking skill of students classified as high in cluster A is 16% higher than that of cluster B, and 35% higher than that of cluster C.

Research Question 3: Is there any difference of students' critical thinking skill in the three areas?

Table 1: The result of the Anova Test for Critical Thinking Skill

CT_Y					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	339.122	2	169.561	0.815	0.443
Within Groups	122311.075	588	208.012		
Total	122650.196	590			

Source: Output SPSS 25

Based on the table above, it can be seen that the critical thinking skills of students in rural areas (Cluster A), urban (Cluster C), and industrial areas (Cluster B) have no difference. This can be proven by the significance value of 0.443> 0.05 which means Ho is accepted and Ha is rejected. The conclusion is that there is no significant difference in critical thinking skills in the three areas, namely cluster A, B, and C.

Research Question 4: Is there any effect of home literacy environment on students' critical thinking?

Table 2: The result of the Anova Test for

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	42.427	3.603		11.776	0.000
	HLE_X1	-0.033	0.056	-0.024	-0.585	0.559

Source: Output SPSS 25

Based on the table above, it can be seen that the home literacy environment has no effect on students' critical thinking skills. This can be proven by the significance value of 0.559> 0.05 which means Ho is accepted and Ha is rejected. The conclusion is that there is no significant effect of the home literacy environment on critical thinking skills in the whole area.

The result of the current study differs from previous research by Davoodi, (2017) and Silinskas et al., (2012), who stated that HLE affected CT. This study showed that CT was not affected by HLE. It's important to note that the relationship between the home literacy environment and critical thinking skills can be complex and influenced by various factors. While a rich home literacy environment can contribute to cognitive

development, including critical thinking, it's not the sole factor at play. The researcher argues that some reasons why the home literacy environment might not always appear to directly affect critical thinking skills in some studies or situations. They are Multiple Influences, Measurement Challenges, Individual Differences, Timing and Duration, Quality of Engagement, Other Environmental Factors, Cultural Differences, Maturation, and Educational Settings (Indah & Kusuma, 2016; Ku & Ho, 2010; Mahapoonyanont, 2012).

Based on these findings, it can be said that HLE has not a significant impact on CT. In summary, while a rich home literacy environment can certainly contribute to cognitive development, including critical thinking skills, it's important to consider that this relationship is influenced by numerous factors, and the effects may not always be immediately observable or uniform across all individuals or contexts. Researchers continue to investigate the complex interplay between these factors in understanding cognitive development.

5. CONCLUSION

The results showed that HLE varied in different areas. In rural areas (Cluster A), the proportion of students who have a home literacy environment that is at least moderate is quite large, with very few students having very low or very high HLE. Industrial (Cluster B) and urban (Cluster C) areas show better HLE, with fewer students lacking literacy resources and a small percentage enjoying very high literacy environments. Regarding CT ability, most high school students in all areas have mid-level abilities, with the proportion of students with low and high abilities approximately the same but smaller. In particular, Cluster A has a greater percentage of students with high CT ability compared to Clusters B and C. When evaluating the difference in CT ability between the three areas, the ANOVA results showed no significant difference, which suggests that the area where students live does not affect their CT ability.

Further, the study found no significant effect of HLE on students' CT ability, contrary to previous research showing an association. The study suggests that although HLE may contribute to cognitive development, its effect on CT is indirect and may be influenced by factors as diverse as individual differences, quality of engagement, cultural variation, and educational setting. To this end, the study suggests that although HLE is an important aspect of cognitive development, its direct impact on CT ability may not be significant and influenced by a complex interaction of factors. This demands a broader consideration of the various influences that contribute to the development of critical thinking skills in students.

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