

The Impact of the Linus Literacy Programme on Reading Ability Skills in Malaysia

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This study was conducted to identify factors contributing to reading proficiency among primary school students who attended the Literacy and Numeracy Screening (LINUS) Programme in Malaysia. A total of 108 students were selected to participate in this study, which used a mixed method. The findings show no significant difference in the proficiency of reading aspects between students in terms of gender. However, the findings proved that students whose parents work in the government sector show better achievement than students from families where their parents working in the private sector. This study also found that students obtained a better command in reading during the post-test was higher than during the pre-test. A qualitative approach is applied to obtain desired data by using observation, interview and document review techniques. The study found that the LINUS teachers used various methods such as demonstrations, instructions, drills and fun learning during teaching sessions while incorporating learning aids; for instance, scan cards and reading kits help students recognise syllables and increase reading ability. Low-income parents, type of occupation, passive LINUS students and frequent absenteeism are among the constraints identified in this study.

Keywords: education, LINUS programme, literacy, primary schools

Introduction

The problem of literacy mastery among students is an issue that has not yet been fully addressed. Various programmes have been implemented to address the problem. The Literacy and Numeracy Screening (LINUS) Programme in Malaysia is one of the National Key Result Areas (NKRA) under the Ministry of Education (MoE), Malaysia. The LINUS Programme, which stands for literacy and numeracy screening, is a continuous step from the existing programme and has been planned more systematically to address students who have not mastered basic literacy skills. The programme is designed to ensure that students master the Malay language's basic literacy and numeracy skills in the first three years of schooling at the primary level.

Primary schools throughout Malaysia have implemented the LINUS Programme to ensure that children successfully master the basic skills of LINUS and prevent students from dropping out. Student outcomes can be improved from time to time

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with the LINUS Programme. Teachers need to help students who are weak in mastering literacy skills and master those skills before the end of Level One schooling. Mastery literacy skills will make students more productive and confident to participate in society and the local community.

Not being able to master reading skills by school children is taken seriously by the government, which targets a zero-illiteracy environment by year 2020 (Ministry of Education 2010a). Based on the MoE Report in 1993, 80,000 primary school students in Malaysia facing problems in basic proficiency, namely read and write (Ministry of Education 2010b). According to Jamian (2016), the reading process is essential and should be mastered by all students from the early stage of schooling. Under the NKRA, the MoE intended to ensure that every student, after three years of primary school education, should master literacy in languages other than English, except for students with special needs (Wane Manogharan et al. 2018). Therefore, to improve students' ability in literacy learning of the Malay language, the MoE has made a significant shift by implementing LINUS Programme since 2010; a programme that identifies problems of dropouts among Year One to Year Three to master reading and writing skills. Following the implementation of this programme, the Malaysian Examinations Board has provided teachers and students modules that adhere to an integrated literacy approach. Among the elements found in the teaching and learning of the LINUS Programme is teaching students with entertaining activities such as singing, games, etc. Next, this study will examine the extent to which demographic factor is closely related to the reading aspects of the LINUS Programme among primary school students.

This study looks at the demographic point of view, namely gender, where the student lives with, the student's early education, the parents' income, and level of education. Chakravarthy (in Palaniappan 2009) proved that cultivating the habit of reading plays a crucial role in a family. Nurturing the habit and interest in reading has a very close relationship with the family lifestyle, the relationship between the child and the parents at home, and the family's socioeconomic status. Therefore, it is clear that cultivating the habit and interest in reading among children is a great responsibility for every parent. According to Koh (2006), illiterate students in Year One are more likely to experience problems throughout their schooling due to failure to read well will affect a child's mastery of skills in school. Thus, reading problems are not something to be taken lightly.

The MoE has formulated and implemented the LINUS Programme to ensure that Year Three students in National Schools (SK) can master literacy and numeracy from 2012 (Ministry of Education, 2010). Serious attention to the issue of failing literacy and numeracy is considered as it relates to the country's progress in the long run. The study of Muller and Murtagh (2002) found that a total of 877 million people in the world in 2000 did not master the basic skills of reading and writing. Meanwhile, the LINUS Report (2016) shows that a total of 4,200 Year One students participated in the LINUS Programme. Findings of the LINUS Literacy Screening Test 2 showed that 190 or 4.52% of the students involved with the LINUS Programme did not master Constructs 1-2, while 737 (17.55%) students failed to master Constructs 3-12. Meanwhile, out of a total of 4,326 Year Two students who

participated in the LINUS Programme, a total of 25 students or 0.58% did not master Constructs 1-2, and 22 or 5.18% students did not master Constructs 3-12.

Therefore, it is clear that there is a problem of reading proficiency among primary school students, namely in terms of the achievement of recognising letters, syllables, words and sentences. Accordingly, this study will identify the factors that affect the mastery of literacy, especially among students of the LINUS Programme. Therefore, the study was conducted based on the following objectives: to identify demographic factors that affect aspects of reading among primary school students that attended the LINUS Programme; to examine the teaching activities of teachers to students of the LINUS Programme, and to identify the constraints faced by the students in terms of reading ability.

The ability to read is a vital aspect of the process of applying knowledge. This view implies that reading activities coincide with human behaviour that will involve comprehension. Therefore, teachers involved in teaching, reading and learning activities need to ensure that both elements are taught in an integrated manner to students, especially students who follow the LINUS Programme. The researcher hopes that the MoE, State Education Department, District Education Office, principals, and researchers who teach the LINUS Programme will benefit from this study.

Literature Review

Theories Underlying the Study

The study was based on three theories: Vygotsky's Proximity Theory (Jacobs and Usher 2018, Knestruck 2012), Cognitive Development Theory (Blake and Pope 2008), and Bronfenbrenner's Ecological Theory (Paquette and Ryan 2007, Renn and Arnold 2003). Proximity Theory explains that the development of children's cognitive thinking results from extensive social interactions, which allows them to connect the basic knowledge with new acceptances. Children's social interactions and behaviours also develop in stages based on their development and growth process. Based on this theory, children normally will be influenced by their social world and their interaction with others is considered as significant influence that could improve their thinking ability. At the same time, children will obtain the skill of language from their parents, who will help them to master language. In the meantime, according to the Theory of Cognitive Development, the concept of Proximal Development Zone (ZPD) involves the following aspects:

- i. Children that have the opportunity to be actively involved among more mature and more adult members of society will become more skilled and always think of something in their cultural circle.
- ii. Children will be more easily involved in society's culture and respond to the environment by using the advantages of thinking, dialogue and language mastery.

Sigelman and Rider (2011), through Bronfenbrenner's Theory of Ecology, explained the aspects of human development and behaviour. The human social-ecological environment is based on how individuals interact and consists of five systems: the microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem. The microsystem is the system that has the most influence on the development of children. The system covers one's environment, such as around the house with parents and children or around the school, with teachers and friends. According to White and Coleman (2000), based on the philosophy of family ecology theory, schools and communities are the responsible parties in providing early childhood education.

Past Studies

Literacy is an aspect related to one's culture and background. Children will acquire language knowledge and skills through their parents and others around them. Children will understand written material better in a language they know. In revealing a child's literacy based on family and community background, it depends on how the child involved is given a broader meaning about literacy (Gillen and Hall 2013). Thus, several studies examined the relationship of parents, academic level of parents, and other aspects of demographics with literacy ability among children. According to Hoff (2013), children from low economic status are those from families whose parents have low income and academic qualifications. Thus, such children will pose different level of language development than those from the middle-class family. Upon entering the school environment, the child will face problems during the language class and could obtain lower marks than middle-class children. On the other hand, Jumiya (2014) stressed that factors that influence students' achievement include the attitude of students and parents, self-identity, cultural differences, economic status, learning style, mother tongue and teachers-students relationship.

Several studies in Malaysia have examined the relationship between demographic factors and literacy proficiency among students. Among them is Ruslida's (2005) study, which involved 125 parents and 125 preschool children in five preschools, under the supervision of the MoE, in Petaling Jaya, Selangor. The study examined the involvement of parents in four aspects, namely providing guidance and material supports to their children, storytelling, interaction and spending reading time with their kids. The study found a significant relationship between parental involvement and the achievement of essential reading skills among preschool children.

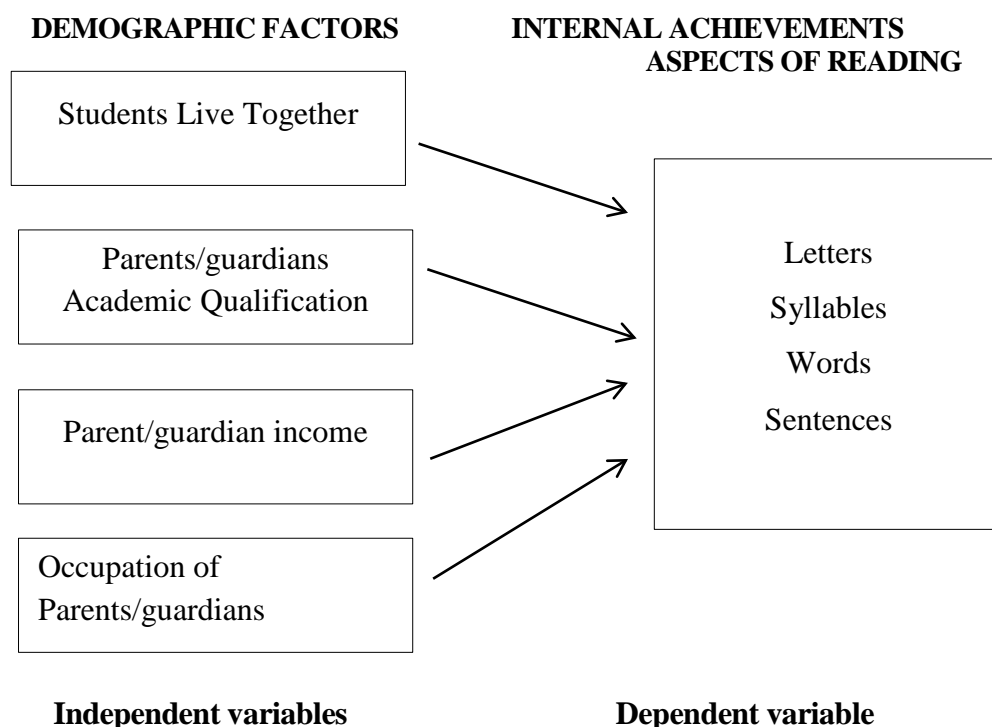
The study of Christopher et al. (2013) has explored the aetiology of individual differences in reading development from kindergarten to fourth grade by analysing data involving 487 pairs of twins in Colorado. Data from three reading measures and one spelling measure were used to study behavioural genetics regarding the aetiology of early reading development among twins. The longitude study found a genetic influence on individual differences from kindergarten to fourth grade. Lau's (2013) study has examined five characteristics of parental involvement that could

improve students' command and proficiency. The five characteristics are the roles of family, resilience, social supports, concrete supports, and attention. The study of Raban and Nolan (2006) showed that early reading practices and exposure at home would bring various advantages to children in mastering basic reading skills. A study conducted in Victoria, Australia, showed that parental involvement has started since their child was three years old. The results show that reading storybooks to children will help them improve language skills and inject a desire to learn and read. Chakravarthy (in Palaniappen 2009) proved that reading practices positively affect a child's reading habits.

A study by Hasnalee and Zulkifley (2011) found that demographic factors of students and teachers do not affect reading and comprehension skills among students. However, the skills and expertise level of teachers that responsible in conducting LINUS Programme will determine the readiness of students and the level of assistance given to the students will be able to improve students' literacy mastery. The results also show that the inability of teachers to identify children's problems at the time they first enter school will impact the learning process and would prevent children from gaining the full benefits (Achenbach 1991, Offord and Lipman 1996, Rimm-Kaufman et al. 2000).

Conceptual Framework

Figure 1. *Conceptual Framework of the Study*



Based on the findings of previous studies, the researcher found that several demographic characteristics have a relationship in terms of reading ability among students. Thus, the researcher concluded that the factors that influence the reading aspect of students are demographic factors such as early education of students, gender, socio-economic level of their family, place of residence and parental education level. Thus, Figure 1 is the study's conceptual framework that summarises the variables used by the researcher.

Methodology

To collect the relevant data and meet the objectives outlined, the researcher used a hybrid approach, a quantitative approach followed by a qualitative method. Quantitative data was used to detect demographic factors on aspects of reading command among LINUS Programme students. The study used two types of research instruments: a questionnaire to collect information related to student demographics and achievement tests to measure student literacy. The achievement test that was used is the LINUS Screening Test. Inferential statistical analysis – t-test and ANOVA were applied to identify the effect of demographic factors on aspects of reading commands and determine the differences in the achievements, both at pre and post-test levels. In the meantime, qualitative data were obtained through the observation method by using parent-teacher interview instruments, teachers' teaching reflections and researcher field notes. Under the quantitative approach, the researcher selected 108 students, involving five primary schools in the urban zone of the Tawau district. The researcher only focused on LINUS Literacy Year Three students and selected them using the sampling method based on Krejcie and Morgan formula. In the meantime, the researcher also ensured that the study complied with legal provisions, including laws related to children, minors and students' fundamental rights. Therefore, every student and parent involved in the study have the right to know about the purpose of the study. Apart from providing adequate information and explanations, all respondents, including teachers, were protected from ethics and confidentiality, and were given assurance that information and responses shared will only be used for academic purposes.

Findings

As described earlier, through this study, the researcher wished to identify the effect of demographic factors on aspects of reading proficiency among primary school students and the data were analysed using independent sample t-test and ANOVA. Meanwhile, the researcher had measured the differences between pre-test and post-test by using a matching t-test. Of 108 respondents, 65 or 60% are male students, and the balance is female students. In addition, 92.6% of students live with their parents, three or 2.8% of students stay with mothers while the remaining students with their guardians. In terms of education, a total of 51 or 47.2% respondents are students with early education in government kindergartens,

and the balance 57 or 52.8% are students with early education in private kindergartens.

Meanwhile, 103 or 95.4% of respondents are parents with SPM academic qualifications, only one or 0.9% of parents have a Diploma, and the remaining four or 3.7% obtained a Bachelor's Degree. In terms of income of parents and guardians of the students, a total of 70 or 64.8% of them earning between RM500 and RM2,000, 35 or 32.4% (RM2,001-RM4,000), and only 2.8% earning RM4,001 and above. Furthermore, the data obtained showed that 45 or 41.7% of the parents work in the government sector, 40 or 37% work in the private sector, while the remaining 23 or 9.8% are self-employed parents.

Table 1. *Differences in Terms of Post-Test Scores from a Gender Perspective*

Gender	N	Mean	Standard deviation	t	Sig.
Male	64	4.98	0.125	0.93	0.65
Female	44	4.95	0.211		

Independent sample t-test results show that there is no significant difference in test scores in terms of gender ($t = 0.93$, $p > 0.05$) (Table 1). This means that male and female post-test scores are the same.

Table 2. *Differences in Terms of Achievement from Respondents' Residence Perspective*

Residence	Sum of squares	df	Mean of squares	F	Sig.
Between groups	0.07	2	0.003	0.120	0.887
In groups	2.91	105	0.028		
Amount	2.92	107			

Meanwhile, one-way ANOVA test analysis shows that there is no difference in post-test scores according to the residence of the respondents ($F = 0.120$, $p > 0.05$) (Table 2). This suggests that the post-test scores obtained were no different whether living with a parent, mother or guardian.

Based on Table 3, the independent sample t-test results show a significant difference in the post-test scores according to the early educational background obtained by the respondents, i.e. ($t = 1.67$, $p < 0.05$). This means that the post-test scores of public and private kindergarten students are different.

Table 3. *Differences in Terms of Post-Test Scores from Early Education Level of Respondents*

Post-test scores	N	Mean	Standard deviation	t	Sig.
Government Kindergarten	51	5.00	0.000	1.67	0.001
Private Kindergarten	57	4.95	0.225		

Table 4. Differences in Terms of Post-Test Scores from the Academic Level Perspective of Parents/Guardians

Academic level	Sum of squares	df	Mean of squares	F	Sig.
Between Groups	0.008	2	0.004	0.14	0.87
In Groups	2.91	105	0.028		
Total	2.92	107			

Based on the description in Table 4, one-way ANOVA test analysis shows no difference in post-test scores according to the academics level of parents or guardians of students ($F = 0.14$, $P > 0.05$). This situation illustrates that whether the parents have an SPM, Diploma or Bachelor's Degree qualifications, the post-test scores are no different.

Table 5. Differences in Terms of Post-Test Scores from Income Perspective of Parents/Guardians

Income	Sum of squares	df	Mean of squares	F	Sig.
Between Groups	0.29	2	0.146	5.86	0.004
In Groups	2.62	105	0.025		
Total	2.92	107			

On the other hand, one-way ANOVA test analysis shows that there is a difference in post-test scores in terms of income ($F = 5.86$, $P < 0.05$) (Table 5). This indicates that post-test scores obtained are different in terms of the level of income of parents and guardians.

Table 6. Differences in Terms of Post-Test Scores from the Sector of Occupation Perspective of Parents/Guardians

Sector of occupation	Sum of squares	Df	Sum of mean	F	Sig.
Between Groups	0.17	2	0.087	3.32	0.040
In Groups	2.74	105	0.026		
Total	2.91	107			

The results of one-way ANOVA test analysis shows that there are differences in post-test scores in term of the sector of occupation ($F = 3.33$, $p < 0.05$) (Table 6). Indirectly the finding indicates that working parents, whether in the government, private sector or self-employed, the post-test scores obtained show a significant difference.

The researcher also tested the difference between the two mean dependent variables by selecting a sample to test the null hypothesis. The researcher studied the differences between achievement scores (reading command) before treatment (pre-test) and after treatment (post-test). The scores obtained for each test shown in Table 7. The finding shows that there is a significant difference between the achievement level during pre-test and post-test ($t = 13.223$, $p < 0.05$), and the post-test score was higher (mean = 4.97) than the pre-test level.

Table 7. Differences in the Achievement Level During Pre-Test and Post-Test of LINUS Programme

Test	N	Mean	Standard deviation	t	Sig.
Pre	108	4.35	0.480	-13.223	0.000
Post	108	4.97	0.165		

p<0.05.

Teaching Activities of Reading Aspects of the LINUS Programme

Teachers have implemented various activities in teaching the reading aspect of the LINUS Programme, which contains ten constructs focused on in this study. The study's findings show that LINUS teachers have implemented several activities that help the mastery of the reading aspects of LINUS students. Among them are teaching using the syllable method, entertainment, scan cards and pictures.

- i. The syllable method is a method used by teachers in teaching the reading aspect of the LINUS Programme. Findings of the study show that this method is the choice of teachers in teaching and learning activities, especially for ten constructs in the aspect of reading.
- ii. *Didik hiburan* is also an activity that is the choice of teachers to teach aspects of reading in this study. Entertainment activities involve singing, acting, elements of obsession and so on. Teachers were found to use singing techniques in teaching the reading aspect of the LINUS Programme.
- iii. Reading skills teaching activities for ten constructs were also implemented by teachers using pictures. Pupils are shown pictures and asked to read sentences and examine the information shown. The researchers' field notes further reinforce these findings. Teaching that uses pictures and scan cards will make students more involved in the learning process.
- iv. The teaching and learning of reading aspects of the LINUS Programme are also implemented using teachers' reading kits. The kit contains colourful reading cards to make it easier for students to identify syllables. In addition, this reading kit is equipped with coloured reading cards that can be used and applied repeatedly until students can master the aspect of reading.

Constraints in Mastery of Reading Aspects of the LINUS Programme

Past studies have shown that the problem of illiterate students is still prevalent, and the occurrence is due to various factors (Chakravarthy, in Palaniappen 2009, Lau 2013, Raban and Nolan 2006). The findings of this study have identified several constraints that cause LINUS students to have problems in mastering aspects of reading, namely:

- i. Constraints related to parents' income: There is a significant relationship between parents' income and the level of mastery among the LINUS Programme students. Parents who have a high income or substantial financial resources can provide better learning facilities for their children.

- ii. Constraints related to the type of occupation of students' parents or guardians: The type of occupation will determine whether they have the conducive space and opportunity to assist their children to study or do homework at home. Parents working in the private sector or self-employed spend more time at the working or business place than those working in government sectors.
- iii. Constraints related to the level of education: Parents who have higher academic qualifications tend to monitor their children's learning progress closely. The finding shows that parents with a higher educational background, such as a degree or diploma holder, concern more on the educational development of their children.
- iv. Constraints related to students' capability: Students who have difficulty reading and writing skills, especially in Malay language, could not learn like regular students. Therefore, they need teachers' encouragement and parents' support to improve their skills and command.

Discussion and Implications

The discussion and summary of the findings of this study justify that this research has been able to meet the objectives and answer the research questions and in addition, a description of the study's implications to justify the contribution of this study to education and research. Regarding one of the components related to the first research question, namely whether there is an effect of gender factors on reading by following the LINUS Programme, the results show no significant difference between male and female students. The findings of this study are slightly different from the study of Von Suchodoletz et al. (2013), who found that there were differences between male and female students in reading skills in Germany and Ireland. Regarding the effect of living together on reading, the findings also show no significant difference between students who live with their parents and students who live with their mothers or guardians. The findings of this study are slightly different from the findings of the study of Christopher et al. (2013). Christopher et al. had found differences between students living with their parent and those who are living with their mother or guardians. This is probably due to the cultural differences between Eastern and Western societies.

In terms of the academic level of parents on the aspect of reading, the results show that there is no significant difference between students and the academic qualifications of parents. The finding of this study differs from the view of Hoff (2013), who found that students in the United States whose parents had low academic qualifications had lower literacy proficiency than students whose parents had high academic qualifications. However, there is an effect of early education factors on students' skills. The researcher found a significant difference in post-test scores based on the type of early education of students. For example, post-test achievement scores of government kindergarten and private kindergarten pupils are different. The finding is in line with Muhammad et al. (2014), who stated that there are infrastructure differences between public educational institutions and private

educational institutions in Pakistan. The results of this study prove that different types of institutions influence the findings of the study. This is because each country has different policies on public institutions and private institutions.

Another component in the first research question is the effect of parents' employment factor. The finding shows a significant difference in post-test scores according to the type of parents' occupation. Post-test achievement scores of students whose parents are working in the government, private and those working on their own, is different from one to another. Parents that working as government offices has more time for their children and that enable them score better compared to other. This study found a difference in the level of literacy mastery based on the parents' occupation. Moreover, the findings of this study are in line with the writings of Raban and Nolan (2006) and Chakravarthy (in Palaniappen 2009), who had stated that parents leave a positive impact in cultivating their child's interest in reading. Parents who work in the government sector have more time at home than parents who work in the private sector. Regarding the effect of parental income factors on reading, this is also similar to Cooper's (2010) study, which stated that parental income affects the level of literacy mastery of students. According to Cooper (2010), students who come from high-income families have better literacy levels than students who come from low-income families.

The findings of the study show that the activities applied or carried out by the teachers are student-centred and using methods of learning-playing, such as puzzles and singing activities. Maddahiri et al. (2018) suggested that LINUS Programme teachers need to be more innovative in using teaching techniques appropriate to the ability level of respective students. Innovation in teaching techniques could engage students and assist them to master basic literacy skills better, and it supports opinion shared by Kyle et al. (2013), and Maszuraini and Hamedi (2015).

This study also shows that activities in the classroom trigger students' interest, but learning process only occurs in the classroom and does not continue at home. This is due to the limited time factor as parents may be too busy at work and spend lesser time with their children, especially in guiding or helping them to carry out reading activities at home. The finding is in line with the outcome shared by Sim et al. (2014), that the culture of reading together by parents or their guide since early age could help students to improve reading skills.

In terms of constraints to master the reading skills, the study found two factors that playing a significant role. For example, low-income parents not affordable enough to buy books or reading materials for their children or sending them for extra classes, and parents who are less educated, depend on the teachers and their school. On the other hand, parents with high level of education qualification are always give priority to enhance their children's academic development and achievements. This finding is similar to the study of Heath et al. (2014), who stated that parents with low economic and educational levels pay less attention to their child's literacy development. Constraints in the mastery of reading skills of the LINUS Programme are also due to student themselves as certain students are not active enough in the classroom, and do not want to engage in the learning activities actively. In the long run, this situation if not addressed effectively will affect the level of achievement of students.

Recommendation

Almost all countries are aware of the importance of parents spending time with their children. Japan is a developed country that attaches great importance to the practice of parents spending time with their children. Therefore, Japan has implemented several policies, including giving working mothers long leave to take care of their children (Boling 2006, Steury 1993). The Malaysian government needs to take proactive measures as practised by Japan in ensuring that parents give adequate attention. MoEs need to be more sensitive to students who are less literate and come from low economic status. They need to be given appropriate assistance, such as giving reading materials to the student. The LINUS Programme can also be implemented based on various approaches that are appropriate according to students' needs. Teachers need to provide early exposure to the concept of printed materials, i.e., the introduction of literacy before teaching reading skills. Parents should also be encouraged to attend parenting courses, primarily developing their children's minds and literacy improvement. Studies have identified several important factors that influence the literacy mastery of LINUS students. Therefore, this research has been able to identify the demographic impact on literacy mastery, particularly reading skills. However, there is still room and opportunity to add value to literacy-related research. The added value can provide a more accurate picture of all the crucial things in the teaching and learning literacy among LINUS students in Malaysia.

Conclusion

The findings of this study are in line with the views put forward by Shapiro and Waters (2005), Sagarra and Alba (2006), and Atay and Ozbulgan (2007), who found that the use of keywords can produce significant learning effects. Atkinson (1995) once emphasised that the keyword method is the most effective method to improve memory among the many vocabularies learning strategies. Findings show that teachers apply student-centred teaching activities by using demonstration methods, giving instructions, drills and entertaining learners such as puzzles and singing. The innovation of LINUS Programme teachers in teaching techniques can attract students and help them master literacy skills even better.

Learning aids such as scan cards and kid reading used by LINUS teachers can help LINUS students recognise syllables and read. The availability of learning aids and entertainment methods combined in teaching can attract students' interest. Students who are usually passive will eventually also participate in learning in this activity. Classroom activities such as group learning also play a role in arousing the interest of LINUS Programme students to learn. The study shows that teachers' role during teaching-learning sessions in the school and children-parents' interactions could enhance vocabulary and language mastery among students. Parents' reading practices with their children from an early age will improve their children's reading skills (Sim et al. 2014), thus being able to address literacy issues that concern many

parties, including the students themselves, parents, schools, communities, and educational authorities.

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