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Effects of Instructional Materials on Literacy Levels of Learners among Primary Schools in Helsinki, Finland

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Abstract

Instructional materials are many different tools and resources used by teachers to facilitate learning and encourage the learning process. The study sought to examine the effects of instructional materials on literacy levels of learners among primary schools in Helsinki, Finland. Learner-centered instructional materials encourage meaningful learning and makes learning more enjoyable. Nowadays primary school entry ages make it extremely convenient to employ instructional materials. Literacy is the ability to read, write, talk and listen in a manner that enables people to successfully communicate and make sense of the outside world. Literacy is highly valued in Finland, where over half of all young children can read before entering school. At the pre-school level, play-like activities and emergent literacy are prioritized. The study used the descriptive research design. The target population was 30 primary schools in Helsinki, Finland. The research did sampling of 15 participants that were chosen from the target population of 30 primary schools in Helsinki, Finland. Questionnaires were utilized to gather the data. The study concluded that instructional materials have a significant impact on the literacy levels of learners. The quality and relevance of instructional materials can affect how well learners comprehend and retain information, and ultimately, their ability to read, write, and communicate effectively. Effective instructional materials should be designed with the learner in mind, taking into account their age, reading level, cultural background, and learning style. The study recommended that the government should set aside enough funds to increase the number of instructional materials in primary schools. The government should locate materials centers to make it easier for teachers to borrow or collect teaching materials that are unavailable in primary schools.

Keywords: *Instructional Materials, Literacy Levels, Learners, Schools, Finland*

1.0 Background of the Study

An instructional material enables learners understand more easily when the teacher makes use of working model. It makes teaching simpler and more fruitful for the instructors. The improvement of teaching and learning outcomes is significantly aided by the efficient use of instructional materials. In a classroom context, the use of pertinent materials encourages learners to become more focused and motivated. Materials that help teachers make their lessons clear to learners are known as instructional materials. They are used to communicate concepts, thoughts and notes to learners. According to Gupta and Pathania (2021), instructional materials are many different tools and resources used by teachers to facilitate learning and encourage the learning process. The basis for what learners will encounter and learn is provided by the instructional materials. They have the ability to either inspire or disengage learners (Arthur-Nyarko, Agyei & Armah, 2020). As a result, it's important to carefully consider how teachers plans, selects, utilizes and arranges instructional materials.

Present-day primary school entry ages make it extremely convenient to employ instructional materials. The Piaget concrete and preoperational phases of intellectual development apply to children between the ages of 3 and 9 years (Williams, Park, Oh, & Breazeal, 2019). However, it is noted that different materials exist that may be used to help teaching and learning, particularly in the early years of school. Visual and audio-visual tools are also included in instructional materials. Visual equipment's are things that students can see. These include chalkboards, textbooks, actual objects, posters, charts, and posters. While audio-visual materials, such as radios, TVs, movie theaters, projectors, and computers, excite both the visual (seeing) and audio (hearing) senses. Gomwalk (2021) noted that these materials range from basic educational materials developed locally to sophisticated and complicated ones. Some of them are created and cannot available in the typical educational setting for the learner.

Instructional materials facilitate learning and teaching. Learner-centered instructional materials encourage meaningful learning (Dumpang, Sedanza & Las Johansen, 2021). They make learning more enjoyable and permanent while also facilitating teachers' instructional efforts. When giving instructions, instructional materials act as a conduit between the teacher and the leaners. They could also act as teaching and learning's motivators. They are used to keep learners' alert and get rid of boredom. Despite the benefits of teaching resources, some teachers choose to teach without them for various reasons, including their lack of availability or the fact that certain topics don't require them. However, some teachers argue that teaching materials cannot be made up on the spot i.e. in the classroom, others are too difficult to use, or they take up too much time in the classroom (Pun, Thomas & Bowen, 2022).

In Finland, primary education starts the year a kid turns seven and is free of charge for the learner (Salmela-Aro & Chmielewski, 2019). There are no prerequisites for entering primary school. The learner's local schools are where the instruction are provided. The primary school learners are aged 7 to 13. There is no rivalry for admission among learners and attending a public or private school has no difference. Finland has 2800 schools that provide learners in grades 1 to 9 quality education. At the pre-school level, play-like activities and emergent literacy are prioritized. Reading using phonics is emphasized in the primary school curriculum, however reading comprehension techniques are also taught as early as grades 1 and 2 (Ashleigh, 2020).

The ability to read, write, talk and listen in a manner that enables people to successfully communicate and make sense of the outside world is known as literacy. Literacy is highly valued in Finland, where over half of all young children can read before entering school (Torppa, Soodla, Lerkkanen & Kikas, 2019). The nation's strong literacy rate is partly a result of its low secondary school dropout rate and high enrolment rate of over 93%. Basic literacy is crucial for expression, thus it is also significant. Learners will encounter many challenges to connect with topics throughout the curriculum if they lack basic reading abilities. Poor reading and numeracy abilities may have a substantial negative effect on a learner's overall education and capacity to succeed in life (Duke & Cartwright, 2021).

2.0 Literature Review

Barus, Simanjuntak and Resmayasari (2021) conducted study to determine the link between instructional materials and literacy levels in the UK. The research design used in the study was correlational. 200 respondents were the intended audience and 70 of them served as the sample size. To determine the sample size, simple random and purposive sampling methods were utilized in the research. In order to gather data, questionnaires, interview guides, and desk reviews were employed. To handle the data, SPSS was used. The results showed that the usage of visual aids was modest and that 50.1% of respondents strongly agreed that the instructional materials utilized were pre-determined. 46.9% firmly agreed that lesson plans include good recommendations for teaching strategies. According to the report, a significant proportion of pupils received grades in divisions IV and U. (Unclassified). According to the research, 69.0% of respondents and 79% of respondents, respectively, believed that pupils understood literature and participated in literature lessons. Results also showed that lesson plan attendance from Monday through Friday would be at .116 when maintaining instructional material utilization to a constant zero. An increase in the use of educational resources boosts the appropriate ratio by a factor of 0.11 in terms of standardized relevance throughout the learning process. The study recommended that the government should set up enough funds that would be used to improve secondary school libraries and labs. To allow teachers to borrow instructional materials that are not accessible in secondary schools, the government should establish resource centers. The government could also host conferences, meetings, and seminars to improve citizens' proficiency with instructional materials. School administrators should monitor their teaching personnel use the available instructional materials efficiently. To improve learners' literacy, the community should promote parental engagement in supplying instructional materials for secondary schools.

Listiani, Suwastini, Dantes, Adnyani and Jayantin (2021) conducted research to determine the effect of instructional materials on the literacy level of Basic Science in primary schools in Toronto, Canada. The research looked at how instructional resources are used in science classrooms and how they have impacted students' literacy in basic science. The study's design was quasi-experimental. The research was led by two research questions and two hypotheses. By using a simple ballot method, 150 students were chosen at random from four secondary schools in Toronto. The researcher created a 20-item test known as Diffusion Achievement Test (DAT), which was utilized to gather data for the study. The test's dependability score was 0.86. Mean, standard deviation, and an independent t-test were used to examine the results of the pretest and posttest. The findings indicated that the usage of instructional materials had a positive impact on students' understanding of scientific topics. The outcome also showed a significant difference between genders in terms of mean accomplishment scores, with females having a higher mean

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score than males. Among other things, it was suggested that instructors look for instructional materials to deliver lessons effectively.

Fauzi and Chano (2022) performed study to evaluate how the chosen secondary schools in Canberra, Australia use appropriate and quality instructional materials in the classroom and how this has helped students' literacy levels. The three main goals of this study were to: investigate how teachers and students perceive the impact of learning facilities on literacy levels; investigate the difficulties secondary school teachers encounter in obtaining and utilizing instructional materials; and evaluate the methods teachers employ to reduce these difficulties. The survey used in the research was cross-sectional. The study's sample included students from every secondary school in Canberra. Eight secondary schools in Canberra were chosen at random from a total of 20 for the data gathering. 36 learners and 7 teachers from each school completed a semi-structured questionnaire. In addition, one secondary education official and the leaders of every school were interviewed. The study concluded that: First, the literacy levels of learners are mostly determined by the teaching materials. Secondly, most of secondary schools in Canberra have inadequate fundamental instructional and study materials. Thirdly, the research indicated that teachers used various approaches, such as book borrowing and importation, to lower the challenges related with locating and using quality instructional materials. The study recommends that the government should provide adequate money to increase accessibility to instructional materials across all secondary schools. This research also recommends that some facets of how instructors and learners utilize instructional materials for effective teaching and learning processes should be looked at in subsequent research.

Sun, Toh and Steinkrauss (2020) reported that learners' literacy should be developed throughout the teaching process in the twenty-first century. To foster comprehensive competency, integrated teaching is pertinent to 21st century learning concepts. Additionally, incorporating reading skills into lessons might help learners become more proficient in a particular subject. The integration of integrated teaching and a literacy program in the classroom has been pushed by Indonesian education policy in the 2013 curriculum. However, there was still a lack of connection between the natural science curriculum and learners' reading levels. The application of literacy-based natural science curriculum to our issue of respiratory and excretory health served as the problem's solution. One research methodology option is a quasi-experimental approach. Non-equivalent group of two group samples were used in the study design. A multiple-choice written exam, an attitude observation sheet, and a skills performance evaluation sheet made up the research tools used to gather the data. Three methods of analysis were used to examine the data: descriptive statistics, a test to compare two means and the Mann-Whitney test. According to the data analysis's findings, integrating literacy skills into natural science training has a significant impact on learners' academic accomplishment in terms of knowledge, attitudes, and science process abilities.

Dong and Hu (2019) performed research to determine how instructional materials affect literacy levels in Singapore's Western Region's colleges. A case study research strategy was used for the study because it is qualitative. Three literature teachers from each of the three colleges of education in the Western Region make up the study's population. The three colleges and the three literature teachers were all selected for the research using the purposive sampling method. The primary tool for gathering data was the interview guide. Based on the themes identified during the data collection from the respondents, data were analyzed using the interpretive approach. The research came to the conclusion that instructional materials promote students' cognitive skills and spark

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their interest in the course by assisting them in using critical reasoning while being taught and learning. The research also showed that teachers' competency levels aid them in topic evaluation and selection of relevant materials for every concept. Their aptitude for following classroom instructions depends on their pedagogical abilities. The research also found that the large quantity of information accessible to students to augment their training and the guidelines for the use of instructional materials had a significant influence on teaching and learning circumstances. It is advised that professional development be planned for the literature tutors at their various institutions so they are capable of evaluating learners' comprehension of literature classes using pertinent instructional materials. It is also advised that the National Teaching Council, universities, and Singapore Tertiary Education Commission work together with the colleges to offer workshops and seminars for teachers of literature to keep up-to-date on the usage of digital instructional materials in class presentation.

Lee, Llosa, Grapin, Haas and Goggins (2019) conducted research to assess the effectiveness of teaching English as a second language to secondary school learners using instructional materials. The effectiveness of learners who were taught using instructional materials and the impact of gender on the usage of teaching aids in English classrooms were assessed in the research. In the research, a descriptive survey approach was used. All secondary school learners in one district made up the study's population. Using a simple random selection approach, 100 learners from two public schools were selected in total. The objective test for the 2019 external examination was modified to gather data and descriptive statistics (mean and standard deviation) and inferential statistics of the t-test were used to analyze the results. The results of this study showed that secondary school learners who were not taught using instructional materials performed extremely poorly. Additionally, results showed that neither gender nor type of school had any discernible effects on learners' English language performance.

3.0 Research Methodology

The research used the descriptive research design. The target population was 30 primary schools in Helsinki, Finland. The research did sampling of 15 participants that were chosen from the target population of 30 primary schools in Helsinki, Finland. Questionnaires were utilized to gather the data.

4.0 Research Findings and Discussion

The discussions are presented in sections. The discussion section is an important part of the research paper or report, as it allows the researcher to delve deeper into the meaning and significance of their results, and to provide insight into the potential impact of their research.

4.1 Correlation Analysis

The results presented in Table 1 describe the correlation analysis

Table 1: Correlation Analysis

		Literacy Levels	Instructional Materials
Literacy Levels	Pearson Correlation	1.000	
	Sig. (2-tailed)		
Instructional Materials	Pearson Correlation	.235 **	
	Sig. (2-tailed)	0.000	0.000

The correlation results from Table 1 indicate that the instructional materials was positively and significantly associated with literacy levels ($r=.235$, $p=.000$). This concurs with Dong and Hu (2019), reported that large quantity of information accessible to learners to augment their training and the guidelines for the use of instructional materials had a significant influence on literacy of the learners. It is important to carefully consider how teachers plans, selects, utilizes and arranges instructional materials for learners.

4.2 Regression Analysis

The section consists of model fitness, analysis of variance and regression of coefficient. The findings presented in Table 2 show the model fitness

Table 2: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.235a	0.217	0.109	0.000065

The results from Table 2 show that instructional materials was discovered to be satisfactory in explaining the literacy levels in primary schools in Helsinki, Finland. The coefficient of determination, or R squared, is a statistical measure that represents the proportion of the variation in the dependent variable (in this case, literacy levels) that can be explained by the independent variable (instructional materials). The R squared value of 0.217 indicates that 21.7% of the variation in literacy levels can be attributed to instructional materials. This suggests that while instructional materials are an important factor in explaining literacy levels, there are other factors that contribute to literacy levels in primary schools in Helsinki, Finland. It is worth noting that while an R squared value of 0.217 may seem relatively low, it is not uncommon in social science research. It is important to consider the context of the study, as well as the size of the sample and the range of values for the variables in question, when interpreting the R squared value. Overall, the results suggest that instructional materials are an important factor to consider when examining the literacy levels of primary schools in Helsinki, Finland. However, further research may be needed to better understand the other factors that contribute to literacy levels in this context.

Table 3: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.98	1	7.98	20.31	.000b
	Residual	11.79	30	0.393		
	Total	19.77	29			

The result in Table 3 shows that the overall model was statistically significant. The findings reveal that literacy levels is a good predictor in explaining the instructional materials among the primary schools in Helsinki, Finland. The F statistic is a measure of the overall significance of the regression model. In this case, the F statistic has a value of 20.31. This indicates that the variation in literacy levels that can be explained by instructional materials is statistically significant. The p-value is a measure of the probability of obtaining a test statistic as extreme as the one observed, assuming that the null hypothesis is true. In this case, the null hypothesis is that there is no relationship between instructional materials and literacy levels in primary schools in Helsinki, Finland. The reported p-value of 0.000 indicates that the probability of observing a relationship as strong as the one observed, assuming that there is no true relationship, is extremely low. In statistical analysis, the conventional probability significance level is typically set at 0.05. This means that if the p-value is less than 0.05, the null hypothesis is rejected and the alternative hypothesis (that there is a true relationship) is accepted. In this case, the reported p-value of 0.000 is less than 0.05, which means that the null hypothesis is rejected and the alternative hypothesis is accepted. Overall, the F statistic and the p-value suggest that the relationship between instructional materials and literacy levels in primary schools in Helsinki, Finland is statistically significant. This provides additional evidence to support the conclusion that instructional materials play an important role in explaining literacy levels in this context.

Table 4: Regression of Coefficient

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	0.124	0.032		3.875	0.034
Instructional Materials	0.325	0.143	0.498	2.273	0.002

According to the results presented in Table 4, it was found that instructional materials was positively and significantly associated to literacy levels ($\beta=0.325$, $p=0.002$). This was supported by a calculated t-statistic of 2.273 that is larger than the critical t-statistic of 1.96. The results implies that when the usage of instructional materials improves by one unit, the literacy levels of primary schools learners in Helsinki, Finland will increase by 0.325 units while other factors that influence the literacy levels are unchanged. Barus, Simanjuntak and Resmayasari (2021), articulated that to improve learners' literacy all stakeholders should be sensitized on the importance

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of instructional materials for primary schools learners and encouraged in providing them. They act as a conduit between the teacher and the learners and act as teaching and learning motivators. They are used to keep learners' alert and get rid of boredom.

5.0 Conclusion

It is clear that instructional materials have a significant impact on the literacy levels of learners. The quality and relevance of instructional materials can affect how well learners comprehend and retain information, and ultimately, their ability to read, write, and communicate effectively. Effective instructional materials should be designed with the learner in mind, taking into account their age, reading level, cultural background, and learning style. Materials should also be engaging and interactive, providing opportunities for learners to practice and apply their skills. Instructional materials should be aligned with educational standards and curriculum objectives, ensuring that learners are exposed to the appropriate level of content and skills at each stage of their education. This can help to prevent gaps in knowledge and ensure that learners are adequately prepared for the next level of instruction. The use of high-quality instructional materials can significantly improve literacy levels among learners, providing them with the foundational skills they need to succeed in school and beyond.

6.0 Recommendations

The government should set aside enough funds to increase number of instructional materials in primary schools. The government should locate materials centers to make it easier for teachers to borrow or collect teaching materials that are unavailable in primary schools. To encourage their use of instructional materials, the government should provide seminars, conferences and meetings. School administrators should monitor their teaching staff to ensure that the available instructional materials are used properly so that their impact is reflected on the literacy of learners.

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