Integrative approach for reading comprehension espousing information communication technology literacy

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Article Info

ABSTRACT

This study aimed to investigate the effects of an integrative approach on students' reading comprehension, using information and communication technology (ICT) and reading comprehension, the students' digital literacy and reading comprehension. The quantitative method used an analytical study with cross-sectional research. The data was collected through a questionnaire. There were 473 primary schools with a total of 16,286 children (8,476 male students and 7,810 female students) selected at random as a sample of 400 learners in elementary schools. The findings showed that the integrative approach has a beneficial effect of using ICT and students' reading comprehension and reading literacy. The use of an integrative approach for reading comprehension and using ICT can promote students' digital literacy. The student's reading comprehension and the integrative approach technique were favorable, as seen by the students' excitement and seriousness. The utilization of this integrative approach can enhance the student's ability to comprehend reading comprehension and get effectiveness and efficiency of the Indonesian language. This study provides integrated reading-literacy technology (IRLT) that significantly impacts reading comprehension through the use of ICT and an integrative approach in the reading instruction.

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1. INTRODUCTION

In the era of information and communication technology (ICT), the population of young digital readers has been rapidly increasing [1], [2]. Students need to cultivate specific reading skills for understanding the evolving forms of digital texts and associated sociocultural processes [3]. The implementation of digital technology, commonly referred to as ICT [4]–[6] In the digital age, integrating technology in schools is crucial and essential [7], [8]. The academic results do not meet the expectations [9]. Utilizing ICT for reading instruction enhances the enjoyment of learning. ICT-based reading learning provides students with valuable experiences to enhance their education [10]. Education is currently experiencing significant changes primarily because of the integration of technology for educational purposes. This matter has been given top priority in all educational institutions. By utilizing technological approaches, education was able to persist with substantial impact [11]. An integrative approach to Indonesian reading comprehension involves utilizing a range of approaches to aid students in comprehending the text in its

entirety. Students must study the source material progressively and comprehensively, integrating prior knowledge with new information to develop an integrated comprehended [12]. An integrative approach combines many strategies and procedures in reading [13]. An integrated language skills approach is crucial for teaching all components of language abilities [14].

Reading becomes a crucial ability in academia that significantly impacts students' academic achievement, particularly in a certain field. Reading strategies are scholarly practices that enhance proficiency in how to read. Good students utilize comprehension strategies to facilitate reading tasks, which in turn enhances their understanding and mastery of concepts through the intellectual process of reading comprehension [15]. Enhancing students' reading skills as well as their comprehension of texts [15], [16], they comprehend the significance and intention of reading [17]–[19]. Reading comprehension seeks to understand the substance of a text that has been read by the reader [20]. Reading allows us to communicate information that has been verified and turned into a fact, rather than merely an unsupported viewpoint [21].

Students must cultivate their comprehension skills to effectively comprehend and utilize relevant, clear, and all-encompassing factual knowledge, which can offer alternate interpretations or resolutions to any given problem. Teachers employ a monotonous instructional approach, primarily relying on lecturing, which often leads to student disengagement [17], [22]. The fundamental terminology and connecting skills are insufficient for reading comprehension as some students with great message-receiving ability and reading fluency nonetheless struggle with comprehension [23]. Furthermore, when comprehending words and ideas [24], [25], reading aims to gather details or facts, understand the text structure, and classify and assess the information [26]–[29]. Reading skills involve word meaning identification, making conclusions, authorial technique recognition, components of writing identification, and question answering [30].

The issues identified were the students' inadequate reading comprehension skills, evident in their average score of 5 in reading skill acquisition. Students exhibited low desire and struggled to fully understand the reading material. These issues primarily affect students who have not required the standard scores. The observations revealed that reading comprehension skills scored an average of 58 out of a score of minimum completeness criteria is 75%. Teachers frequently encounter challenges with the learners' reading comprehension abilities, this should be offered to address students' unresolved learning challenges in order to prevent potential issues.

Some previous studies revealed by integrating a distributed perspective of reading into reading education, students can enhance their reading abilities and optimize their learning process [22]. This approach has the potential to bring about significant transformations in our society. Reading comprehension in both native Chinese (L1) and second language English (L2) may have significant characteristics; fluency likely plays a crucial role in comprehending written text in any language [15]. English language teaching methods are designed to meet the needs both English language lecturers and students through an integrated language approach [31]. The findings indicate that instructing students with difficulty in a customized, integrated language learning method is an effective way for improving their reading comprehension abilities. This result is supported by another study indicated that reading comprehension skills improve when taught using an integrative approach based on study of lessons [32].

Previous research shows that greater investigation is needed into the integrative approach, specifically with the use of ICT in developing reading comprehension in the current era. Researchers are interested in conducting research how the integrative approach to reading comprehension and ICT use might improve literacy among elementary children. Researchers must explore the intricacies of the digitization of reading by keeping up the introduction of new technology. It is highly recommended to employ an integrative approach that focuses on reading comprehension to enhance students' problem-solving abilities. It is important to examine the suggestions provided by the students for improving this approach, as they align with recommendations given by other researchers.

Students are currently living in the information age, experiencing significant changes, particularly in the realm of digital technology, which has become integrated into their daily lives. Students are familiar with ICT, therefore it can be utilized for educational purposes [33]. This study demonstrates that ICT learning is adaptable to several aspects that impact educational practices and stays current with advancements in development and communication. Additionally, it utilizes a variety of internal components. It engages students' attention, making learning activities more engaging. Researchers recommend employing the integrative language approach to teach reading in school settings as a solution.

The significance of ICT literacy issues is growing in Indonesia, particularly in South Sulawesi. It is crucial to find out whenever ICT literacy can successfully reduce online dangers, particularly among children. Thus, a highly effective protect is to integrate information communication technology literacy into the educational curriculum, enabling students to fully comprehend reading materials, critically analyze and assess online media, and therefore protect themselves from potential risks and criminal activities that could potentially be concealed within various forms of media and technology. Considering the widely recognized significance of the topic, it is now crucial for researchers to take on this gap. Therefore, the main goal of this

research is to investigate the effects of an integrative approach for students' reading comprehension to espouse the students' ICT and digital literacy in elementary students in Indonesia.

2.   LITERATURE REVIEW
2.1. Integrative approach
An integrative approach involves combining multiple elements into a unified learning process. Integrated learning is a method that links student activities with real-life experiences and the environment. The integrative approach focuses on language acquisition and representation at the single-word level [20]. It involves integrating several areas of language training. Integration is achieved through fundamental qualities that students must possess to prevent material from being separated. Teaching material is a unit that requires an appealing presentation.

2.2. Reading comprehension
Each individual of our interconnected society should possess the ability to read. It is a crucial skills for life [20]. Students must possess reading comprehension skills to understand various course materials in schools [34]. If the students cannot read, their academic performance will decrease. Reading can enhance individuals' productivity and proficiency across various academic disciplines [25], gain achievements and fulfill mental necessities [35]. A student's reading skill refers to their comprehension of symbols, sounds, words, and phrases in written form, which is analyzed using cognitive skills to gather information.

2.3. Information and communication technology use
ICT refers to technologies for acquiring information that are based on telecommunications [36]. While sharing similarities with information technology (IT) largely focuses on communication technologies. The internet, networks of wireless cell phones, and other communication technologies methods are encompassed [36]. It is a subject that involves the scientific, technological, and engineering aspects of managing information and its connection to social, economic, and cultural issues [18]. United Nations Educational Scientific, and Cultural Organization (UNESCO) asserts and supports this ICT. The educator is essential in the current educational setting. Teachers can engage in positive interactions with students [37].

2.4. Students' literacy
In 2016, the European literacy policy network provided a definition of literacy as the ability to read and write proficiently, enabling individuals to comprehend and effectively utilize written communication across many forms of media, including print and online [38]. Reading literacy is not only essential for achieving success in every aspect of adult life [39], but it is also a fundamental requirement for achieving success in most academic disciplines [40]. Integrating social activities has greatly enhanced literacy instruction. Furthermore, acknowledging the diverse ways individuals apply literacy in their everyday routines. This technique prioritizes learner-centered goals for language training at all levels [41], gaining literacy skills in students [42].

2.5. Theoretical framework
Davis et al. developed the technology acceptance model (TAM) to elucidate individuals' utilization of technology and their attitudes towards technology [43]. This approach links individuals' attitudes towards using educational technology with their actual usage, considering perceived benefits and ease of use [44]. TAM is the most influential technology acceptance model widely used in studies in the field of IT. TAM theory has various types of models that have been widely used to get a broader perspective and a better explanation of the process of accepting technology in individuals. They examined how people's desires to use technology were a reliable indicator of their actual usage, and how they thought the benefits were strongly linked to these intentions. The significance that was attributed to an action was linked to an individual's willingness to participate in those manners. Technology aims to enhance high-quality education and reduce expenses by providing extensive instructional resources and educational opportunities [45].

3.   METHOD
3.1. Research design
The quantitative approach employed an analytical investigation utilizing a cross-sectional research method. Cross-sectional study involves collecting data from multiple individuals at a specific moment in time. This involves observing factors without changing responses [46]. Data were collected from a predetermined sample at a single time point, statistical analysis was conducted to test the study hypotheses, and the significance of the results was ascertained.

3.2. Population and sample

This study employed multiple-step cluster sampling to determine the study sample. A territory was selected using simple random sampling from each of the 14 zones (sub-districts) into which the population was separated. The areas consist of Tamalanrea, Biringkanaya, Manggala, Panakkukang, Ujung Tanah, Bontoala, Wajo, Ujung Pandang, Makassar, Rappocini, Tamalate, Mamajang, Tallo, and Mariso Sub-districts in Makassar, Indonesia. The study sample was selected via simple random sampling from schools in the 14 sub-districts. This study randomly selected 473 primary schools in Makassar city, as well as 16,286 students (8,476 male students and 7,810 female students) from those schools. There were 400 children sampled from primary schools in Makassar city.

3.3. Data collection and instrument

The research instrument applied was a questionnaire. Open questionnaires allow respondents to contribute responses to questions [47]. This will decrease the bias caused by closing the finished questionnaire. The closed-ended questionnaire restricts respondents from responding to questions based on specific measures. Open-ended questionnaires have disadvantages including greater non-response rates, complex coding of lengthy replies, coding challenges in large-scale online surveys, and a wider range of responses compared to close-ended questionnaires. Moreover, open-ended inquiries may result in more insufficient responses from participants.

3.4. Data analysis

This study employed quantitative content analysis. Data was gathered directly from the survey responses provided by various respondents. This analysis method is appropriate for examining data obtained from open-ended questionnaires. This provided the researchers with a methodical approach to handling the analysis and interpreting the text derived from open-ended questionnaires and other unprocessed data. A questionnaire was utilized as a research instrument in this study and was accessible through Google Forms. The Google Form link was then sent to the chosen study participants through WhatsApp by the education officer. Respondent's participation in the survey was optional, and all data regarding their identities was securely safeguarded and inaccessible to unauthorized individuals.

4. RESULTS AND DISCUSSION

There were 400 elementary school learners engaged with the research investigation. This study analyzed the effects of an integrative approach, ICT use, and students' literacy on reading comprehension in primary students. Descriptive statistical analysis was used to sum up the language learning outcomes.

4.1. The effect of integrative approach on students' reading comprehension

To find out the effect of integrative approach on students' reading comprehension through each factor namely good and poor. This could be used by a 2×2 crosstab Chi-square test could be presented in Table 1. The results revealed that the integrative approach had a more significant effect on good reading comprehension compared to poor reading comprehension. A total of 267 informants demonstrated proficient reading comprehension with an accuracy rate of 66.8%. There were 133 participants who had poor reading comprehension, making up 33.2% of the total responses.

Table 1. The results of crosstab Chi-square test

| | | | Reading comprehension | | Total |
			Good	Poor	
Integrative approach	Good	Count	134	103	237
		Expected count	158.2	78.8	237.0
		Percentage within integrative approach	56.5%	43.5%	100.0%
		Percentage of reading comprehension	50.2%	77.4%	59.2%
		Percentage of total	33.5%	25.8%	59.2%
	Poor	Count	133	30	163
		Expected count	108.8	54.2	163.0
		Percentage within integrative approach	81.6%	18.4%	100.0%
		Percentage of reading comprehension	49.8%	22.6%	40.8%
		Percentage of total	33.2%	7.5%	40.8%
Total		Count	267	133	400
		Expected count	267.0	133.0	400.0
		Percentage within integrative approach	66.8%	33.2%	100.0%
		Percentage of reading comprehension	100.0%	100.0%	100.0%
		Percentage of total	66.8%	33.2%	100.0%

4.2. The effect of information and communication technology use on students' reading comprehension

To find out the effect of ICT on students' reading comprehension through each factor namely good and poor by using a 2×2 crosstab Chi-square test could be presented in Table 2. The results test show that there was influence between ICT in use and reading comprehension. This can be proven as follows good ICT had an effect toward a good reading comprehension in as many as 150 (37.5%) respondents. In addition, good ICT also influenced poor reading comprehension in as many as 103 (25.8%) samples. While poor ICT influenced 117 (29.2%) samples of good reading comprehension and poor ICT influenced 30 (7.5%) samples of poor reading comprehension. It can be concluded that both good and poor ICT influenced 267 (66.8%) good reading comprehension and 133 (33.2%) poor reading comprehension.

Table 2. The results of crosstab Chi-square test of ICT in use

| | | | Reading comprehension | | Total |
			Good	Poor	
ICT	Good	Count	150	103	253
		Expected count	168.9	84.1	253.0
		Percentage of ICT use	59.3%	40.7%	100.0%
		Percentage of reading comprehension	56.2%	77.4%	63.2%
		Percentage of total	37.5%	25.8%	63.2%
	Poor	Count	117	30	147
		Expected count	98.1	48.9	147.0
		Percentage of ICT use	79.6%	20.4%	100.0%
		percentage within reading comprehension	43.8%	22.6%	36.8%
		Percentage of total	29.2%	7.5%	36.8%
Total		Count	267	133	400
		Expected count	267.0	133.0	400.0
		Percentage of ICT use	66.8%	33.2%	100.0%
		Percentage of reading comprehension	100.0%	100.0%	100.0%
		% of total	66.8%	33.2%	100.0%

4.3. The impact of literacy on students' reading comprehension

This study found out the effect of literacy on students' reading comprehension through each factor namely good and poor by using a 2×2 crosstab Chi-square test could be presented in Table 3. The results of the test show that there was influence between literacy and reading comprehension. This can be proven as follows good literacy had an impact on good reading comprehension as much as 109 (27.2%) samples. In addition, good literacy also had an impact on poor reading comprehension as much as 93 (23.2%) samples. While poor literacy influenced 158 (39.5%) samples of good reading comprehension and poor literacy influenced 40 (10%) samples of poor reading comprehension. It can be concluded that both good and poor literacy influenced 267 (66.8%) good reading comprehension and 133 (33.2%) poor reading comprehension.

Table 3. The results of crosstab Chi-square test of literacy

| | | | Reading comprehension | | Total |
			Good	Poor	
Literacy	Good	Count	109	93	202
		Expected count	134.8	67.2	202.0
		Percentage within literacy	54.0%	46.0%	100.0%
		Percentage of reading comprehension	40.8%	69.9%	50.5%
		Percentage of total	27.2%	23.2%	50.5%
	Poor	Count	158	40	198
		Expected count	132.2	65.8	198.0
		Percentage within literacy	79.8%	20.2%	100.0%
		Percentage of reading comprehension	59.2%	30.1%	49.5%
		Percentage of total	39.5%	10.0%	49.5%
Total		Count	267	133	400
		Expected count	267.0	133.0	400.0
		Percentage within literacy	66.8%	33.2%	100.0%
		Percentage of reading comprehension	100.0%	100.0%	100.0%
		Percentage of total	66.8%	33.2%	100.0%

The study intended to explore the effect of an integrative approach on students' reading comprehension, the effect of ICT use on students' reading comprehension, and the effect of students' literacy on reading comprehension. There were 400 primary school children participated in a study. Researchers

revealed a positive effect of an integrative approach on students' reading comprehension, ICT utilization, and literacy skills. It can be challenging to get a comprehensive understanding of all knowledge exclusively through classroom learning. Researchers strive to enhance reading comprehension abilities by analyzing and enhancing the learning activities conducted by teachers. They focus on developing and implementing effective learning activities to achieve improved results compared to past outcomes. The educators spent time proactively supervising students by closely monitoring each student's engagement in the reading process.

The research findings demonstrate a beneficial effect of integrative approach and students' reading comprehension. It is probable that one factor contributing to comprehension issues, albeit not the sole one, is the process of integrating words into text. The initial stage for providing a comprehensive view on reading comprehension [20]. Utilizing an integrative approach to reading comprehension might help students better understand the subject being taught. At the beginning and end of the cycle, children demonstrate improved reading comprehension, which enhances their engagement, dedication, and bravery in the learning process. The literacy class setting enhances reading comprehension and fosters student engagement in the reading process. Another study also supports the notion that an integrated strategy is more advantageous for children to enhance their reading comprehension [32].

The integrative approach positively affects students' reading comprehension skills. This is evident through the teacher's enthusiasm and dedication in implementing the approach, making it easier for students to comprehend. The approach is easy to include into the teaching-learning process and learning objectives for story time, allowing teachers to positively influence children' development as readers [48]. The application of the integrative approach is vital for improving English proficiency and inspiring English foreign language (EFL) learners to learn. Integrating appropriate reading practices will improve the reading class environment and impact students' reading comprehension [14].

The findings demonstrate a positive effect of literacy and children's reading comprehension. Literacy indirectly encourages children to engage in reading activities, which in turn fosters their enthusiasm in participating in classroom activities with a greater sense of responsibility. Enhanced literacy skills can provide pupils with advantages like increased comprehension, readability, and grasp of the subject matter. Furthermore, these findings have implications for the implementation of the literacy movement to enhance reading comprehension skills. Reading has become a habit for kids due to the assistance of school facilities and activities that promote literacy. As a result, reading has become a necessity for children.

Literacy activities enhance students' motivation in reading by utilizing several strategies in literacy instruction [49]. The treatment impact on the two standardized reading comprehension tests was deemed minor. The results provide a paradigm for improving teacher instructional outcomes and student academic achievement in the beginning stages of support [48]. Literacy skills are essential for students in the twenty-first century, as they can impact their academic progress and overall quality of life [50]. Literacy is a crucial basis for success in both academic and personal life. Strong reading abilities enable children to comprehend and explore different forms of learning, including oral, written, and visual texts [51]. It is crucial to build reading skills to help students enhance their subject-matter knowledge and concepts, which can support various aspects of life [52].

Students' reading comprehension was impacted by the use of ICT. Other studies have confirmed this finding, indicating that teachers have identified four potential uses for ICT in reading comprehension instruction: capturing students' attention, providing access to suitable online reading materials, assisting teachers in achieving their educational objectives by facilitating learning [43]. ICT achieved the highest score in digitally evaluated comprehension abilities [53]. The student's proficiency in ICT and English reading comprehension showed considerable improvement as a result of the intervention. Early reading interventions utilizing ICT and other ICT-based reading strategies often used in American public schools are still in the early stages of development. This outline is the most efficient technological methods [54] and strategies enhance learning languages, particularly in reading courses.

Presently, students are coming of age in the information era marked by significant changes, particularly in the realm of digital technology, which has integrated into children's daily lives [55]. Children are familiar with ICT, thus it can be utilized for educational purposes [10]. This research found that ICT learning is adaptable to varied educational needs and is regularly updated on development and communication. This aligns with the TAM concept. TAM theory is the predominant, and most utilized model in IT, incorporates technology into instructional and educational activities [44], [56], and it is exerting significant influence in teaching.

Enhancing ICT-based learning skills can optimize the learning process, making it more engaging and motivating for students. This can also improve the effectiveness and efficiency of teaching and learning, as well as enhance students' ability to organize knowledge. Developing digital literacy can be achieved by engaging in activities like reading news and seeking information. Utilizing technological advancements effectively in the classroom may streamline all processes [57]. Accessing a wealth of knowledge and opportunities for digital literacy can assist teachers and students in developing digital competence [58].

Teachers, school authorities, and other stakeholders need to comprehend students' viewpoints on using technology in reading and language learning classrooms [59].

Furthermore, after conducting this study, the researchers obtained results that an integrative approach for improving reading comprehension can greatly benefit students' digital literacy and support the students in achieving optimal reading comprehension. This approach supports thorough comprehension of texts, expands students' reading knowledge, and enhances their ICT-based learning abilities. Therefore, implementing an integrative approach can improve the learning process and promote higher competency in information organization for elementary school students. And the students' capacity can understand reading comprehension and optimize the efficiency and effectiveness of the Indonesian language.

4.4. Integrated reading-literacy technology

Understanding how to read is essential for acquiring knowledge, participating in society, and understanding the world. Educators prioritize utilizing technology to enhance the learning process, especially teaching reading in the digital era. It can be particularly difficult to undertake this task in reading literacy schools as the focus of daily sessions in improving reading abilities. As technological advancements progress, it is becoming increasingly common for technology to be incorporated into educational settings. This is an item developed by integrated reading-literacy technology (IRLT). Integrating technology into language instruction has become increasingly popular as a method to enhance teaching and learning [59]. Enhancing proficiency in utilizing ICT can facilitate learning tasks. Enhancing ICT-based learning skills might optimize the learning process, engage students, improve information organization, enhance relevance, and increase the efficiency of teaching and learning.

5.   CONCLUSION

The researchers found a positive effect of the integrative approach and primary school students reading comprehension, ICT use, and digital literacy in a study involving 400 students. Utilizing an integrative approach to reading comprehension with ICT helps to enhance the digital literacy of elementary students. Utilizing an integrative strategy can effectively enhance students' digital literacy and improve their reading comprehension. This approach aids the students in comprehensively grasping texts, expanding their reading expertise and abilities, and helps the students to enhance their ICT-based learning skills, thereby optimizing the learning process and fostering greater proficiency in information organization. This offers to enhance the quality, relevance, and efficiency of education. Through this integrative approach, elementary school students can enhance their reading comprehension and develop a greater understanding of the Indonesian language. Moreover, focusing on the everyday development of reading skills can prove particularly challenging in those contexts. Improvements in technical initiatives have led to the integration of technology in classrooms. This results in IRLT.

For further researchers to conduct research of integrative approach for writing, speaking, and listening abilities using technology, it is recommended to conduct in-depth investigations with samples from advanced students and to include a broader range of samples from across Indonesia. There are limitations to this study. The results cannot be generalized due to the fact that the sample was obtained from the lower secondary school level in Makassar. The study did not consider the children's detailed viewpoints on EFL reading when gathering data through a self-report tool and a test. Thirdly, the students complete the reading comprehension survey. Their use of strategy may have been influenced by the initial section of the questionnaire.

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