

## Literacy Culture in Edutainment Teaching Aids for Early Childhood Education: A Mix Method Study

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### Abstract

The demand for upgrading Teaching Aids increases in line with curriculum developments, especially in the aspect of literacy culture. Teaching Aids is a strategic medium for improving children's literacy skills by bringing the concept of education and entertainment (edutainment) to early childhood. This study aims to explore perceptions of the use of teaching aids that focus on reading corners to develop a literacy culture for ECE children. A holistic perspective was adopted in the study by presenting three perspectives from parents, children, and teachers through a mixed-method approach. Data collection was carried out using random sampling techniques at kindergartens/PAUDs in Indonesia through questionnaire surveys and observations. The findings of this study reveal that an integrative holistic approach strengthens literacy culture as a lifestyle, not just a hobby, and supports the development of students' reasoning and logic. It involves teaching aids from teachers and parental support to create comprehensive character education.

**Keywords:** *Literacy Culture, Edutainment, Teaching Aids, Early Childhood Education, Reading Corner*

### INTRODUCTION

Teaching aids have become a strategic instrument in teaching and have gained significant traction in many studies, such as mathematics (Alshatri et al., 2019), English literature (Asokhia, 2009), medical colleges (Baxi et al., 2009), and early childhood education (ECE) (Nachiappan et al., 2018). Teaching aids can facilitate fun and relevant learning experiences with technological developments in line with today's early childhood education needs (Rahiem, 2021). Teaching aids in the general context become strategic tools in facilitating knowledge transfer from teachers as sources of knowledge in the form of innovative instructions to students as recipients. Teaching aids include dolls, augmented reality books, game tools, and other media. In various gaps, problems arise related to children's weak interest in learning. It is important to implement a holistic approach in teaching aids or digital media to effectively integrate kinesthetic and emotional visual elements. The effectiveness of teaching aids is holistically integrated, involving the role of teachers at schools and parents at home, which broadly develops the role of children's education (Hill, 2022; Meng et al., 2023). The role of parents in building literacy will facilitate the teaching instructions carried out by teachers at schools and build learning variations for innovative learning that encourage the presence of edutainment in children's education (Meng et al., 2023).

A digital literacy culture will help teachers look for examples and stimulate the transfer of children's knowledge unconsciously, without coercion, in a happy atmosphere. Another role of Teaching Aids apart from helping to build focus for children whose attention span is limited, learning instruments will support creative exploration and simulations for early childhood to build the development of social skills through collaborative work. In line with this, teaching aids play a more important role in building educative education and entertainment to overcome traditional learning, which is often considered monotonous and irrelevant to children's development today (Mesesah, 2024). The development of children using teaching aids is becoming an increasingly

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interesting issue in the context of efforts to build inclusive learning contexts. These aids, such as complementary multisensory interactive games to digital technology, empirically provide support for children's social and emotional cognitive development ([Lee-Cultura et al., 2022](#)). Teaching aids take the role of not only designing exploration but also encouraging child-centered learning following the game approach and collaboration. In the current study, it has been emphasized that developing skills such as problem-solving and digital media literacy as a form of teaching aids significantly impacts children's health in facing future challenges. This study emphasized the concepts of learning and playing. At this point, students will be encouraged to learn happily. Children who are identical to the world of games, such as games, will be happy and immersed in the game. It will make them happy. The concept of happiness is built by encouraging a fun learning environment within the scope of education and entertainment (edutainment). The idea behind an educational approach is that educational content should focus on educational content. The development of funny characters by injecting specific technologies, such as augmented reality, as teaching aids can be assistive media, such as animation, games, and iconic characters of impressive figures for children as students.

The need to provide teaching aids as part of teaching aids has been attached to the implementation based on data released by the Central Statistics Agency showing that in the 2022/2023 school year, there are 93,385 kindergartens and 31,049 Raudhatul Atfhal (RA) units, with the need ([Finaka, 2023](#)). These data demonstrate the high market demand for teaching aid products in the context of early childhood education and reflect the large need for educational resources that reach the early childhood population distributed across Indonesia. At the same time, these data highlight the challenge space for the government in ensuring equal distribution of quality and access to education. The market map for educational teaching aids in Indonesia shows that demand is increasing rapidly. This agrees with the emphasis on early childhood education. The teaching aid market is driven by government policies that support ECE programs through independent curricula and activity-based learning educational assistance. In addition, public awareness of the importance of early childhood education can be increased by contributing to the expansion of teaching aids. As occurs in the field, kindergartens and schools generally apply learning using traditional methods, including teaching aids like fairy tale books. However, now, fairy tale books, which are a means of learning, have been upgraded with the AR (Augmented Reality) method so that children can learn in writing and audio-visually with 3D quality. Expanding teaching aids is also supported by children's learning styles, which prefer visuals over writing.

Studies have shown that teaching aids such as educational simulation games using number cards help children recognize the notation of numbers and letters and upgrade motor skills with induction tools that build learning variations through interactive visual media or applied technology-based media ([De la Torre et al., 2021](#); [Fernandez-Antolin et al., 2021](#); [Gordillo et al., 2022](#)). The phenomenon gap in the problem is that the implementation of teaching aids is faced with limited access to technology, little training for early childhood teachers and variations in the quality of teaching aids available in various regions in Indonesia. Some schools still rely on traditional methods such as classical lectures, which are ineffective compared to schools that have implemented modern teaching aids. The burden of this problem requires a robust response from the education industry, school providers, parents, and the government. Education policy now focuses predominantly on the issue of digital mediation of learning to expand the scope of access and increase the attractiveness of learning ([Boistrup & Selander, 2022](#); [Jensen et al., 2022](#))

This study develops a research question regarding whether the role of a digital literacy culture that is built in a holistic, integrative manner can have a constructive impact on the development of edutainment teaching aids. This study builds the construct of teaching aid development from the perspective of edutainment theory. This study empirically tests the role of

literacy culture in developing teaching aids and its impact on children's leading learning concepts.

## **LITERATURE REVIEW**

### **Edutainment Theory**

The teaching concept is based on the edutainment theory. Edutainment is a teaching approach that elaborates on the two critical pillars of educational goals with an entertainment approach (Aksakal, 2015). Edutainment represents innovative instructional learning theories that combine elements of education and entertainment to create a fun learning model. This theory helps students explore their abilities to create activities and form creativity. The unique characteristic of edutainment learning is that it places students as subjects in the research object. In its application, edutainment places students at the center of learning, where the teacher's role is to explore the needs of students to bring children with noble character through appropriate learning methods so that children can develop according to their potential (Hirsh-Pasek et al., 2015). Children of certain cultures usually receive cultural education through a process of enculturation. Enculturation seems to occur naturally and is related to education, play, family relationships, and friendships (Yoon et al., 2020). Cultural literature is culture-specific. There are too many different cultures to be able to learn, as most people have a fluent cultural knowledge of their culture of origin because they study the culture in which knowledge has been passed on since childhood.

### **Educational Literacy Theory**

The concept of children's educational literacy is a continuous process that encompasses the ability to read, write, speak, and understand literary texts (Hobbs, 2016). Literacy is fundamental in formal and informal education and is essential to children's social, emotional, and cognitive development (Hirsch, 1980; Kretovics, 1985). Literacy is a dynamic, ongoing process initiated by the emergence of curiosity, critical thinking skills, spoken language, and the ability to read and write. Early childhood literacy includes reading, writing, speaking, and understanding reading texts. It affects children's social, emotional, and cognitive development. Literacy is basic in both formal and informal education. The goal of literacy in an educational setting is to ensure that all individuals have sufficient reading and writing skills (Colón & Désir, 2022). Children will be interested in reading literature or books if the reading or book attracts the child's attention, suits the child's needs, and benefits the child (Rad et al., 2024). The family and school environment play a significant role in fostering and developing children's interest in reading.

### **Teaching Aids**

Educational teaching aids are instruments used by teachers to clarify lesson materials and manage the learning environment and learning activities (Frimpong, 2021). Teaching aids can be used to explain materials, test, coordinate activities, provide new learning methods, and support teaching strategies and activities (Ling et al., 2022). Teachers are facilitators and main drivers of knowledge and skills. The style of knowledge transfer that teachers transmit students during the learning process will have an impact when the material is delivered well. The strength of teachers in a school system depends on several critical variables, such as teaching aids, teaching methods, and the environment.

Furthermore, a teacher can facilitate a child's thoughts as a student with the help of teaching aids as a pedagogical tool during the learning process (Suri & Chandra, 2021). Ohwojero (2015) observed that toys and objects help stimulate and develop a child's brain during learning.

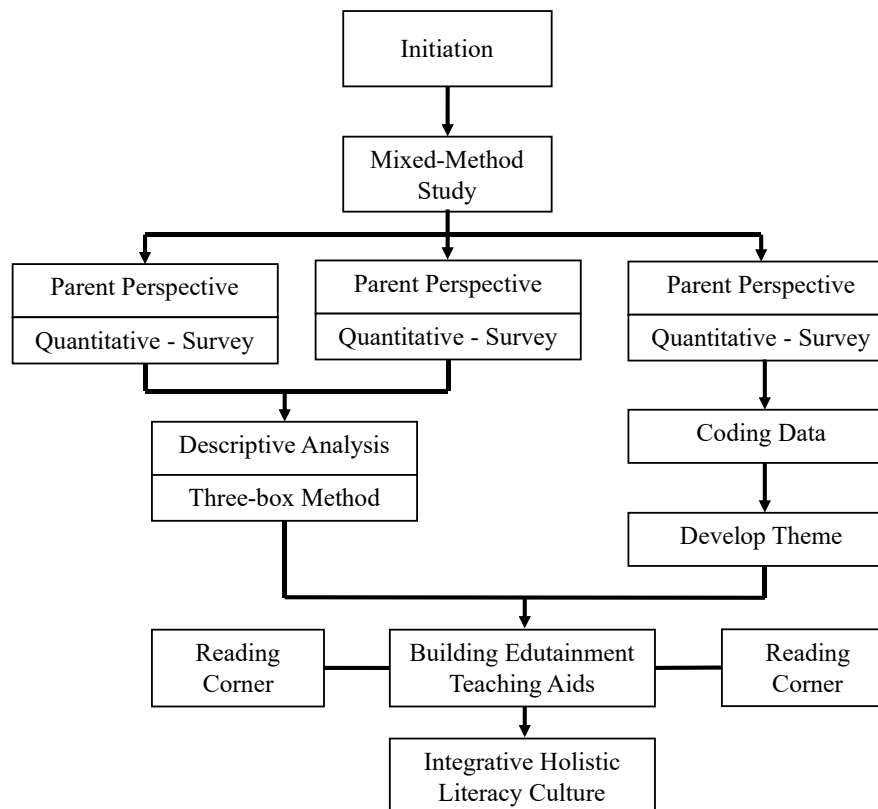
## **RESEARCH METHOD**

This research refers to the philosophy of pragmatism by combining quantitative–descriptive

and qualitative–observation approaches (Saunders et al., 1970) that identify literacy culture from the perceptions of teachers, parents, and children in developing teaching aids for edutainment education (See Figure 1). This study involved 22 kindergarten/ECE children who were observed by teachers. The role of parents was also examined in this study, which involved 15 respondents to provide a holistic perspective in implementing edutainment-based learning. Data mining was carried out using a non-self-assessment method in which the teacher assessed children's behavior and measured the results of the teacher's ability to build educational teaching aids through a culture of literacy. The respondents in this study were education industry players, such as school principals, game developers, education practitioners, and psychology professionals (15 participants). It has fulfilled the adequacy of respondents in the context of qualitative research.

Parents also confirmed the results of accessing literacy and building cognitive understanding in early childhood. The variables used as scale items are valid with a significance of  $<0.05$  and are declared reliable where the value is  $>0.6$  (Hair et al., 2014). Using a qualitative approach, this study conducted observations on children's responses when reading educational teaching aids in the form of fairy tale books equipped with AR (Creswell et al., 2007). The triangulation process was conducted through an empirical review of previous studies (Creswell, 2009).

Data were collected from August 2024 at ECE in Semarang, Indonesia. The ECE that was the informant was a school with a natural theme. This school emphasizes a holistic approach to the child's development as a whole (physical, intellectual, emotional, and spiritual), active learning methods both inside and outside the classroom, and a focus on instilling character education values, thus supporting current study objectives. The data collection process met ethical standards, and all participants declared that they were willing to volunteer to be part of the research. As for observations on children, they have obtained approval from the guardians at school, namely, the teacher and parents as the child's guardians.



**Figure 1.** Research Design

## FINDINGS AND DISCUSSION

Table 1 shows the profile of respondents involved in the study, where the perspectives of teachers and parents on students are identified to obtain holistic findings related to literacy culture. Most of the parents (93%) who were the study respondents were women. This shows that the role of parenting in education focuses more on mothers and meeting directly with teachers. Meanwhile, the gender of most students is also female, amounting to 68.2%, which means they are more dominant in participation in the educational environment in question.

**Table 1.** Demographic Profile of Respondent

Identification	Number of Respondents	Percentage
<b>Gender of Parents</b>		
Male	1	6.7%
Female	14	93%
Total	15	100%
<b>Gender of Student</b>		
Male	7	31.8%
Female	15	68.2%
Total	22	100%

### Quantitative Descriptive Analysis

Table 2 presents the results of the three-box method test on five dimensions. The comparison obtained using item scores 1-6 as the basis for measuring the index value (Ferdinand, 2006) is as follows:

17% - 45%	: Low Index
45.015 – 73.01%	: Medium Index
73.02% - 100%	: High Index

The child's level of happiness while studying was classified as moderate at 48.9. Learning patterns that encourage children to participate actively in the process will encourage children to be highly curious and thus show enthusiasm, which impacts self-confidence so that feelings of joy arise naturally. In addition, children also find it easy to access reading sources with an index value of 68.9, which is classified as moderate. This shows that the knowledge repository presented at schools, especially in the reading corner, can facilitate a source of curiosity for children who wish to explore new things offered by reading books. The parents' perspective was classified as moderate in providing learning to children through fairy tales, with an index value of 50. Fairy tales provide a new nuance for children to understand the flow of events/phenomena, especially with the visuals in fairy tales increasing literacy culture in children because of their interest (Marmoah & Poerwanti, 2022; Marrero Colón & Désir, 2022) in something colorful, engaging, and looking different from usual. Therefore, books in school reading corners tend to be dominated by visuals or images with little text. This limited amount of text makes it easier for children to understand the stories' wisdom and encourages each child to improve their literacy capabilities.

The concept of edutainment is obtained by elaborating on strict educational pillars, such as a child-friendly curriculum that contains anti-physical violence, anti-bullying, and anti-sexual violence, with an entertainment pillar that causes students to get a teaching experience that makes them happy. The concept of happiness is induced by presenting fun games, such as embedding Augmented Reality and Virtual Reality in books rich in educational materials, so that both technologies will provide an actual 3D display to help enrich students' imaginations about figures

that are used as examples of noble behavior. By presenting the concept of learning happily and pleasantly, students will not realize that they are getting an injection of cognitive and affective aspects because students are immersed in the games developed in learning. A story approach that emphasizes the edutainment aspect, which is not only for education but also entertainment for children, parents who can use technology well will find it easier to encourage children to improve their literacy (Schladant et al., 2023). A novelty that can be presented is fairy tale books equipped with augmented reality technology, where 3D characters can appear in the storybooks they read. It will make it easier for children to understand the story's plot and more clearly imagine the story they are reading. Besides that, the interactive reading corner design has a high perspective from parents, namely 88.9. This shows that reading corners are crucial in forming a literacy culture for children. The fun and cheerful impression of the reading corner stimulates children to become more curious about every book in the library.

**Table 2.** Index of Parents' Perspective

<b>Indicator</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>Index</b>
Children feel happy while studying	6.7	0.0	0.0	53.3	233.3	0.0	48.9
Children can easily access reading sources	6.7	40.0	0.0	133.3	33.3	200.0	68.9
Children learn from the fairy tales they tell	13.3	53.3	60.0	133.3	0.0	40.0	50.0
Parents use AR technology to tell children's fairy tales	20.0	13.3	100.0	26.7	133.3	40.0	55.6
Interactive reading corner design	0.0	13.3	0.0	53.3	66.7	400.0	88.9

In this study, the children's perspective in identifying a developing literacy culture is to examine their response to the reading corner as a space that facilitates learning and play for children. Based on the three-box method test, this shows that children were interested in reading books in the reading corner, with an index value of 84.09. In addition, children are also interested in reading books carefully, with an index of 87.12. These findings demonstrate that the interactive design in the reading corner and the varied book references encouraged children to read. The reading corner environment created a conducive atmosphere to increase students' interest in reading (Alhosani, 2022). These findings confirm that students have a sense of responsibility and focus. Success in attracting children to approach the reading corner will give rise to self-efficacy, which will make them not only react individually but also be able to influence their environment, namely by inviting other friends to read books. This is indicated by its high index value of 84.09. The presence of a reading corner can trigger enthusiasm and positive social interactions. Moreover, with the emergence of self-efficacy and confidence in interaction, actions increased from invitations to retelling the stories they read to their classmates.

The results revealed that the reading corner created a comfortable environment and supported students' literacy activities. The atmosphere of the reading corner made children feel comfortable when reading books, resulting in a positive perception ( $r = 88.64$ ). This indicates that the reading corner not only functions as a place to read but also provides a feeling of comfort. Another aspect that emerged was related to the level of discipline the child showed by returning the book to the shelf after reading, with an index value of 87.12. This shows the emergence of responsibility and a sense of ownership for keeping the reading corner neat and clean. If seen from the creative side, children's interest in using the reading corner, apart from increasing literacy, also encourages the BCCT curriculum, especially in role centers, because a high index of 81.6 was obtained for the activity of imitating one or more of the characters in the book. Literacy culture



develops in line with the independent learning and independent playing curriculum. Children's involvement in literacy discussions with teachers has the lowest score, with an index of 75.76, but is still relatively high within the index value range. This shows an opportunity to increase children's participation in deeper interactions related to book content. Overall, these data demonstrate that the reading corner has succeeded in encouraging children's happiness, comfort, responsibility, and involvement in various literacy activities. However, several aspects can still be improved to optimize the reading experience.

**Table 3.** Index of Teachers Perspective.

<b>Indicator</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>Index</b>
<b>Students are interested in taking books.</b>	0.00	4.5	4.55	4.55	54.55	31.82	84.09
<b>Students read the book carefully.</b>	0.00	4.55	0.00	9.09	40.91	45.45	87.12
<b>Students invite their friends to read books.</b>	4.55	0.00	4.55	4.55	50.00	36.36	84.09
<b>Students retell what they read to their friends.</b>	4.55	0.00	0.00	22.73	54.55	18.18	79.55
<b>Students like to linger in the reading corner</b>	0.00	0.00	13.64	13.64	40.91	31.82	81.82
<b>Students show joy when in the reading corner</b>	0.00	0.00	0.00	18.18	50.00	31.82	85.61
<b>Students discuss books with the teacher</b>	0.00	4.55	4.55	36.36	40.91	13.64	75.76
<b>Students comment on the stickers on the wall</b>	0.00	4.55	9.09	4.55	54.55	27.27	81.82
<b>The atmosphere of the reading corner makes students feel comfortable when reading books</b>	0.00	0.00	0.00	18.18	31.82	50.00	88.64
<b>Students imitate one or more characters in the book</b>	0.00	0.00	9.09	18.18	50.00	22.73	81.06
<b>Students invite their friends to act out the stories in the book</b>	0.00	0.00	9.09	31.82	36.36	22.73	78.79
<b>Students return books to the shelf after reading</b>	0.00	0.00	0.00	13.64	50.00	36.36	87.12

Understanding literacy in the development of literacy-based teaching aids is built from 12 indicators used to measure literacy implementation, including:

- a. Interest in reading books, with a mean score (5.0/6.0) showing that the corner design has been able to attract students' interest in reading. The context of the room design and books their presented interestingly to build an atmosphere that promotes literacy.
- b. Reading the books carefully with a mean score (5.2/6.0). In this context, after students are interested, the child will enter deep learning, entering the phase of appreciating the reading material, where in this phase, the child has developed his true literacy.
- c. The activity of inviting friends to read books (5.0/6.0). The next phase involves building literacy through social cognitive learning. Students invite their friends to build literacy collectively with classmates, which impacts their self-efficacy. Self-efficacy is a form of intentionality referring to students' intentions to invite their classmates to build literacy and, as proactive agents, influence their friends to improve literacy.

- d. Ability to retell what has been read (4.7/6.0). This mean score provides a descriptive form of appreciation of the results of reading, capturing the induction of knowledge from the teacher, namely, being able to retell and practice the captured literacy. It is a form of successful learning.
- e. The feeling of being happy to linger in the reading corner (4.9/6.0) will build a literacy context not only as a hobby but as a way of life. It is a special thing to build a literacy culture.
- f. Expression of joy when studying (mean score (5.1/6.0). Learning can be achieved when students are active in the reading corner, playing with educational props or teaching aids used by the teacher, and showing the learning side happily. Collaboration between education and entertainment that is built in harmony has encouraged the presence of edutainment. In this context, students do not realize that they are part of the learning process because of the happy atmosphere.
- g. Discussing books with the teacher (4.5/6.0). In this context, students are dominantly enthusiastic about discussing the results of literacy absorption and asking for teacher appreciative responses. The wisdom of stories in teaching aids and students' reading results will require improvements in social cognitive literacy, especially after being confirmed by the teacher.
- h. Active role in providing comments (4.9/6.0). In this context, students have self-efficacy; the developed literacy provides a sense of confidence to respond to every challenge given by actively commenting on the material explained by the teacher.
- i. Students feel comfortable when reading a book (5.3/6.0). The context of students appearing to enjoy reading books in various poses, which can be shown in gestures of liking the activity, has the impact of a literacy atmosphere where reading corners, teaching aids and augmented reality-based storybook media have been able to encourage the presence of a literacy culture ([Yekple et al., 2021](#)).
- j. The ability to absorb one or more story characters (4.8/6.0) provides an overview of the concept of display media created by the teacher, which attracts students so that they can remember it and enter it into memory as literacy. The growing ability of children to retell or mention figures that are examples of learning induction shows that the learning process has been successful.
- k. Imagination acting out the story in the book (4.7/6.0) forms enthusiasm when students like the choice of learning media, choice of story, and story scenario structure chosen by the teacher, which is the desire of the students to re-enact it in line with the story scenario constructed by the teacher in class.
- l. Responsible for tidying up and returning books and study aids to their place after reading (5.2/6.0). In this context, students are responsible for maintaining teaching aids.

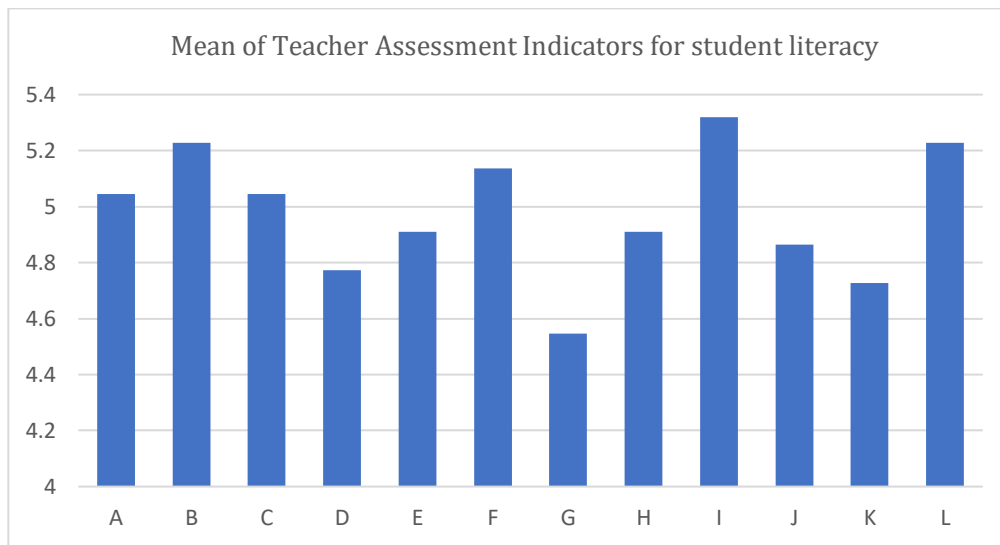
Furthermore, assessment from parents is needed to measure:

- a. The parents should ensure that students are cheerful every day (5.0/6.0). This context shows that the concept of learning starts from the family, and a happy mood in students from home can initiate a spirit of building literacy.
- b. Parents can access online reading resources (5.0/6.0). Parents' ability to access digital literacy sources enriches the induction of character education in children. This literacy becomes a provision for measuring what children need and what learning media are appropriate to children's cognitive and mental growth and development goals.
- c. Parents used fairy tales for education (2.7/6.0). The ability to tell stories, including the ability to build logical story scenarios or build ideas from folklore, is something that is still difficult

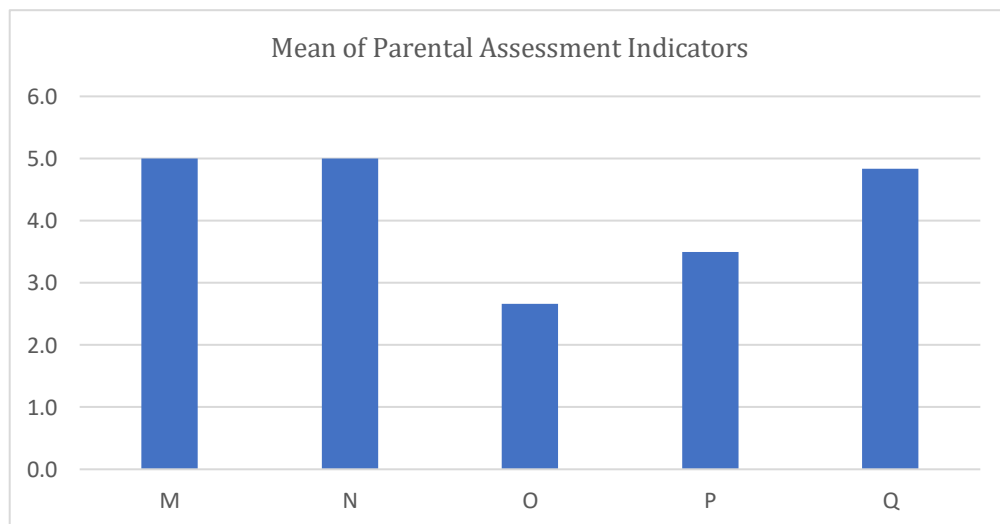


for parents to do, even though in many studies, the concept of fairy tales has been used to induce children's character with noble character so that the mean score obtained is relatively low.

- d. Parents can operate augmented reality technology and convey the wisdom of stories (3.5/6.0). In this context, literacy is crucial in its role in influencing parents' ability to absorb the wisdom of stories for the education of children with noble character (Rehman et al., 2022). Difficulty accessing the internet will result in low digital literacy in children.
- e. Parents have a teaching aid formula (4.8/6.0). The formulation of teaching aids at home can be in the form of simple games, simulation games, and reading materials that are understood to encourage children's enthusiasm for building literacy.



**Figure 2.** Student Assessment Instrument



**Figure 3.** Parental Assessment Indicators

### Qualitative Observation

At several points, parents related to building fairy tale scenarios, and when they were confirmed to the teaching staff, they explained their skills in building logical story scenarios because this required literacy that was explored extensively.

*"The use of fairy tales in building a classroom atmosphere attracts students' interest, but the teacher's ability to build a logical storyline into the context of children's stories about their daily lives is not easy. You can look at tutorials on the internet, but in practice, bringing stories to life requires expertise from experts and special training."*

Strengthening the function of teaching aids in the form of micro-hand puppet props or role-playing costumes, for example, requires preparation for implementation. The preparation involves preparing a story plot to be played on stage or with hand puppets (Boysen et al., 2023). In this context, these limitations were explored by modifying stories on the internet and implementing them in community service programs. On the other hand, the problem of creating limited storylines is confirmed by the low variety of educational games parents provide to children, which support teaching induction at school (Small, 2016), as confirmed by the teaching teachers.

*"Schools have the challenge of building teaching aids that are interesting and fun, but it would also be good for parents to develop literacy in the context of parenting. Unfortunately, parenting at home often shows children watching television, which causes laziness to move and other psychological problems. It can be avoided if it is good. At school and home, they get good access to literacy."*

This context provides an overview of psychomotor problems in students, where the teaching aids developed must acquire cognitive, affective, and psychomotor aspects (Romiszowski, 2013). Developing teaching directions is prioritized in building character education with noble character. It is fundamental to build flow and media equipment to support educational and entertaining teaching.

In line with the perspective of Education theory, it encourages the presence of a learning process that elaborates the concepts of education and entertainment so that it becomes a fun learning design. An atmosphere that makes students happy attracts more students' interest in learning. In line with the perspective of edutainment theory, students whose hearts are happy will more easily remember and understand the learning instructions given by the teacher. Edutainment can also sharpen students' activeness, responsiveness, and creativity. Edutainment can be applied in various educational patterns, especially in ECE.

## **CONCLUSIONS**

An integrative holistic approach will more strongly encourage the presence of a literacy culture in students' lives, not just as a hobby but as a way of life. Literacy will help students' reasoning and logic grow well. This induction involves many teaching aids built by teachers at schools, which are also strengthened by parents' capacity to explore literacy, thus facilitating the learning process. The induction of education with noble character is holistic and integrative. Several points used to build practical implications in this study are: School principals need to direct class teachers to identify learning objectives and build teaching aids that encourage the presence of edutainment learning. School principals are required periodically to provide training in storytelling techniques to address the difficulty of building logical storylines in fairy tale-based learning scenarios. The rational and engaging scenarios that are developed will motivate teaching aids to become livelier and educational learning. Parenting education needs to be held periodically, and the school principal facilitates the use of online learning media such as the internet in building a culture of literacy in children at home so that the responsibility for creating a literacy atmosphere in education is managed holistically and integratively.

## LIMITATION & FURTHER RESEARCH

The limitations of this study refer to the assessment approach, which is related to children's enthusiasm, considering that the object of study is that students in the pre-school classification are assessed through the class teacher because they have not been able to express their thoughts in conveying their opinions regarding the measuring instruments in this study. The sample objects were students at the ECE-B level. Hence, future research should take ECE-A as a comparison object to complement the literature on literacy culture in early childhood education.

## REFERENCES

- Aksakal, N. (2015). Theoretical View to The Approach of The Edutainment. *Procedia-Social and Behavioral Sciences*, 186, 1232–1239. <https://doi.org/10.1016/j.sbspro.2015.04.081>
- Alhosani, N. (2022). The Influence of Culture on Early Childhood Education Curriculum in the UAE. *ECNU Review of Education*, 5(2), 284–298. <https://doi.org/10.1177/20965311221085984>
- Alshatri, S. H. H., Wakil, K., Jamal, K., & Bakhtyar, R. (2019). Teaching aid effectiveness in learning mathematics. *International Journal of Educational Research Review*, 4(3), 448–453.
- Asokhia, M. O. (2009). Improvization/teaching aids: Aid to effective teaching of English. *Int. J. Educ. Sci.*, 1(2), 79–85.
- Baxi, S. N., Shah, C. J., Parmar, R. D., Parmar, D., & Tripathi, C. B. (2009). Students' perceptions of different teaching aids in a medical college. *African Journal of Health Professions Education*, 1(1), 15–16.
- Boistrup, L., & Selander, S. (2022). *Designs for research, teaching, and learning: A framework for future education*. Taylor and Francis.
- Boysen, M. S. W., Lund, O., Jørnø, R. L. Jrn, and H. M. (2023). Role of expertise in playful learning activities: A design-based self-study within teacher education aimed at the development of tabletop role-playing games. *Teaching and Teacher Education*, 128, 104128. <https://doi.org/10.1016/j.tate.2023.104128>
- Creswell, J. W. (2009). Mapping the field of mixed methods research. In *Journal of mixed methods research* (Vol. 3, Issue 2, pp. 95–108). SAGE publications
- Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative research design: Selection and Implementation. *The Counseling Psychologist*, 35(2), 236–264. <https://doi.org/10.1177/0011000006287390>
- Colón, M. I., & Désir, C. (2022). *Best Practices in Meeting the Literacy and Postsecondary Needs of Adolescent Students with Limited or Interrupted Formal Education BT - English and Students with Limited or Interrupted Formal Education: Global Perspectives on Teacher Preparation and Classroom Practices* (L. J. Pentón Herrera (ed.); pp. 161–189). Springer International Publishing. [https://doi.org/10.1007/978-3-030-86963-2\\_10](https://doi.org/10.1007/978-3-030-86963-2_10)
- De la Torre, R., Onggo, B. S., Corlu, C. G., Nogal, M., and Juan, A. A. (2021). The role of simulation and serious games in teaching concepts on circular economy and sustainable energy. *Energies*, 14(4), 1138. <https://doi.org/10.3390/en14041138>
- Ferdinand, A. (2006). *Metode penelitian manajemen*. Semarang: Badan Penerbit Universitas Diponegoro.
- Fernandez-Antolin, M.-M., del Río, J. M., & Gonzalez-Lezcano, R.-A. (2021). Use of gamification in higher technical education: perceptions of university students' perceptions of innovative teaching materials. *International Journal of Technology and Design Education* 31, 1019–1038. <https://doi.org/10.1007/s10798-020-09583-0>
- Finaka, A. W. (2023). *Berapa Jumlah Sekolah di Indonesia 2023?* Indonesiabaik. Id. <https://indonesiabaik.id/infografis/berapa-jumlah-sekolah-di-indonesia-2023>
- Gordillo, A., López-Fernández, D., & Tovar, E. (2022). Comparison of the effectiveness of video-based learning and game-based learning using teacher-authored video games for online software engineering education. *IEEE Transactions on Education*, 65(4), 524–532. <https://doi.org/10.1109/TE.2022.3142688>

- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2014). *Multivariate data analysis* (Vol. 5, Issue 3). Prentice Hall, Upper Saddle River, NJ.
- Hill, N. E. (2022). Parental involvement in education: Toward a more inclusive understanding of parents' role construction. *Educational Psychologist*, 57(4), 309–314. <https://doi.org/10.1080/00461520.2022.2129652>
- Hirsch, E. D. (1980). Culture and literacy. *Journal of Basic Writing*, 3(1), 27–47.
- Hirsh-Pasek, K., Zosh, J. M., Golinkoff, R. M., Gray, J. H., Robb, M. B., and Kaufman, J. (2015). Putting education in "educational" apps: Lessons from the science of learning. *Psychological Science in the Public Interest*, 16(1), 3–34. <https://doi.org/10.1177/1529100615569721>
- Hobbs, R. (2016). Literacy. *The International Encyclopedia of Communication Theory and Philosophy*, 1–11.
- Jensen, L. X., Bearman, M., Boud, D., & Konradsen, F. (2022). Digital ethnography in higher education teaching and learning—a methodological review. *Higher Education*, 84(5), 1143–1162. <https://doi.org/10.1007/s10734-022-00838-4>
- Kretovics, J. R. (1985). Critical Literacy: Challenging the Assumptions of Mainstream Educational Theory. *Journal of Education*, 167(2), 50–62. <https://doi.org/10.1177/002205748516700206>
- Lee-Cultura, S., Sharma, K., & Giannakos, M. (2022). Children's play and problem-solving in motion-based learning technologies using a multi-modal mixed methods approach. *International Journal of Child-Computer Interaction*, 31, 100355. <https://doi.org/10.1016/j.ijcci.2021.100355>
- Ling, L., Yelland, N., Hatzigianni, M., & Dickson-Deane, C. (2022). The use of Internet-of-Things devices in early childhood education: A systematic review. *Education and Information Technologies*, 27(5), 6333–6352. <https://doi.org/10.1007/s10639-021-10872-x>
- Marmoah, S., Poerwanti, J. I. S., & Suharno. (2022). Literacy culture management of elementary school in Indonesia. *Heliyon*, 8, e09315. <https://doi.org/10.1016/j.heliyon.2022.e09315>
- Meng, Q., Yan, Z., Abbas, J., Shankar, A., & Subramanian, M. (2023). Human–computer interaction and digital literacy promote educational learning in pre-school children: mediating role of psychological resilience for kids' mental well-being and school readiness. *International Journal of Human–Computer Interaction*, 1–15. <https://doi.org/10.1080/10447318.2023.2248432>
- Mesesah, P. K. (2024). *Use of traditional games to encourage kindergarteners' participation in numeracy activities in South Tongu District*. University of Education, Winneba.
- Nachiappan, S., Osman, Z., Hassan, N. M., Jamil, N., Hussein, H., Othman, M., & Suffian, S. (2018). An analysis of the criteria and effectiveness of using teaching aids in preschool science and technology components in Malaysia. *Development*, 7(1), 63–82.
- Ohwojero, C. J. (2015). Teaching Aids as a Special Pedagogical Tool for Brain Development in School Children, Interest, and Academic Achievement to Enhance Future Technology. *Journal of Education and Practice*, 6(29), 92–101.
- Oppong Frimpong, S. (2021). The Role of Teaching and Learning Materials and Interactions as a Tool to Improve Early Childhood Education in the Agona East District of the Central Region of Ghana. *African Educational Research Journal*, 9(1), 168–178.
- Rad, H. S., Alipour R, Jafarpour A. (2024). Using artificial intelligence to foster students' writing feedback literacy, engagement, and outcome: a case of Wordtune application. *Interactive Learning Environments*, 32(9), 5020–5040. <https://doi.org/10.1080/10494820.2023.2208170>
- Rahiem, M. D. H. (2021). Storytelling in early childhood education: Time to go digital. *International Journal of Child Care and Education Policy*, 15(1), 4. <https://doi.org/10.1186/s40723-021-00081-x>
- Rehman, M. A., John, S., & Latif, Q. (2022). Early Childhood Program for Karachi Pre-Primary Teachers: Challenges and Opportunities. *Human Nature Journal of Social Sciences*, 3(3), 346–360.
- Romiszowski, A. (2013). Development of physical skills: Instruction in the psychomotor domain. In *Instructional-design theories and models* (pp. 457–481). Routledge.
- Saunders, M., Lewis, P., & Thornhill, A. (1970). Research methods for business students. In *The Lancet* (Fifth Edit, Vol. 295, Issue 7655). Pearson Education Limited. <https://doi.org/10.1016/S0140->

6736(70)91157-8

- Schladant, M., Ocasio-Stoutenburg, L., Nunez, C., Dowling, M., Shearer, R., Bailey, J., Garilli, A., & Natale, R. (2023). Promoting a culture of inclusion: impact of professional development on teachers' assistive technology practices to support early literacy. *Journal of Early Childhood Teacher Education*, 44(2), 147–166. <https://doi.org/10.1080/10901027.2022.2099325>
- Small, C. (2016). Children's fan-play, folklore and participatory culture: Harry Potter Costumes, Role-Play and Spells. *Ethnologies*, 38(1), 255–289.
- Suri, D., & Chandra, D. (2021). Teacher's strategy for implementing multiculturalism education based on local cultural values and character building for early childhood education. *Journal of Ethnic and Cultural Studies*, 8(4), 271–285.
- Yekple, S. L. K., Vinyo, I. Y., & Kumah, M. S. (2021). Developing literacy and numeracy in early childhood education in Ghana: The Role of traditional ewe play games. *International Journal of Progressive Sciences and Technologies*, 25(1), 215.
- Yoon, E., Cabirou, L., Galvin, S., Hill, L., Daskalova, P., Bhang, C., Ahmad Mustaffa, E., Dao, A., Thomas, K., & Baltazar, B. (2020). A Meta-Analysis of Acculturation and Enculturation: Bilinear, Multidimensional, and Context-Dependent Processes. *The Counseling Psychologist*, 48(3), 342–376. <https://doi.org/10.1177/0011000019898583>