



Correlation Analysis Between the Need for Interactive Ethnographic Bumper Videos and Elementary School Students' Home Learning Activities

Deden Nur Fatahillah^{1(*)}, Aswasulasikin², Makmum Raharjo³

^{1,2,3}Educational Technology Department, Faculty of Teacher Training and Education, Universitas Sriwijaya, Palembang, Indonesia

Abstract

Received : November 25, 2025
Revised : February 25, 2026
Accepted : July 9, 2026

This study addresses the challenge of limited integration between home-based and school-based learning in elementary cultural education, particularly in the use of digital media that reflect local cultural values. Despite the growing use of digital platforms, instructional media often fail to connect students' independent learning at home with structured classroom activities. This study analyzes the level of need for interactive ethnographic bumper videos and examines the relationship between these needs and students' home learning activities. A quantitative correlational design was employed, involving 330 fourth-grade students and 12 teachers from three elementary schools in South Sumatra Province. Data were collected through validated questionnaires covering six dimensions of needs pedagogical, technical, cognitive, aesthetic, sociocultural, and evaluative and 20 indicators of home learning activities. Data were analyzed using percentage techniques and Spearman's Rank correlation. The findings show that all need dimensions fall within high to very high categories, with aesthetic (88.1%) and cognitive (86.7%) aspects ranking highest. A strong and statistically significant correlation was found between home learning activities and media needs ($r_s = 0.70-0.75$; $p < 0.05$), indicating that students' home learning experiences significantly influence their expectations toward digital instructional media. These results highlight the importance of culturally grounded interactive media in bridging formal and informal learning contexts. The study recommends strengthening teacher digital competence, improving school infrastructure, and developing culturally responsive media to support collaborative learning in elementary education.

Keywords:

bumper videos; interactive ethnography; home learning activities; collaborative learning; digital media.

(*) Corresponding Author:

fatahillahdedennur1@gmail.com

How to Cite: Fatahillah, D. N., Aswasulasikin, & Raharjo, M. (2026). Correlation Analysis Between the Need for Interactive Ethnographic Bumper Videos and Elementary School Students' Home Learning Activities. *JTP - Jurnal Teknologi Pendidikan*, 28(2), 425–437. <https://doi.org/10.21009/jtp.v28i2.61734>

INTRODUCTION

Introduction Education serves as the primary foundation for shaping human character and civilization. Through education, individuals develop their potential to contribute to society and the nation (Setiawan, 2023). In today's rapidly evolving digital era, the integration of technology into the educational system has become essential to ensure that learning remains relevant and adaptive to contemporary changes. As stated by (Nurhayati et al., 2025), the learning process must evolve in line with technological advancements that influence learning models, methods, and



media. This view aligns with the Merdeka Curriculum policy, which emphasizes the importance of student centered learning and contextual engagement with real-life experiences (Lasterman & Sihotang, 2024).

However, the implementation of learning in the field has not yet fully bridged the gap between students' home and school learning experiences. Home learning activities are often static and limited to tasks such as reading or copying text, while school based learning provides more direct and interactive materials. This situation creates a gap in learning activities that affects students' engagement, motivation, and conceptual understanding. According to a report by the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek, 2023) on home-based learning challenges, approximately 70% of primary and secondary students spent less than three hours per day on learning during distance education periods. This finding indicates a difficulty in connecting home and school learning experiences. Such phenomena highlight the importance of developing instructional strategies that can continuously integrate both learning contexts (Oller et al., 2024).

Cultural education in elementary schools plays a strategic role in introducing values, identity, and social diversity to students from an early age. Unfortunately, observations and teacher interviews reveal that cultural learning materials are often delivered conventionally and textually, without the support of engaging or interactive media. Consequently, students tend to understand cultural content only at a cognitive level, rather than affectively or socially. According to (Mayer, 2024) and his Cognitive Theory of Multimedia Learning, meaningful learning experiences occur when information is presented through a combination of visual, narrative, and interactive elements that simultaneously foster emotional and cognitive engagement.

One potential approach to addressing this issue is the use of interactive digital media based on Collaborative Learning. This model allows students to collaborate, discuss, and construct knowledge collectively, both at school and at home (Bilici & Yilmaz, 2024; Schulz et al., 2025). Digital media designed with collaborative principles can create participatory, flexible, and engaging learning spaces consistent with the principles of the Merdeka Curriculum, which emphasizes active and reflective learning (Salbi, 2025).

In this context, interactive ethnographic bumper videos emerge as a relevant media innovation. This medium presents local cultural content through short, concise, and contextual videos accessible to students in various learning settings (Saputra et al., 2025; Raharjo et al., 2023). Ethnography, as a visual approach, enables the authentic representation of cultural realities, allowing students not only to learn about culture through text but also to experience cultural values through visualization and narrative that are close to their daily lives (Ananda & Albina, 2025). Thus, interactive ethnographic bumper videos can serve as a bridge between home-based and school-based learning experiences.

Globally, several studies have confirmed that digital ethnography plays a crucial role in deepening the understanding of social and cultural contexts in digital learning environments. (Jensen et al., 2022) emphasized that digital ethnography in education provides opportunities for researchers to explore how students construct meaning within online and hybrid learning settings. Similarly, (Borkovich, 2022) noted that integrating ethnographic approaches with digital platforms can

strengthen learner engagement and foster empathy toward cultural values. Moreover, (Bhatia et al., 2024), in their study on family ethnography and home learning, highlighted the importance of connecting school based learning practices with home-based learning activities through relevant digital media. However, these studies have yet to address the empirical relationship between the need to develop interactive ethnographic media and home learning activities particularly within the context of elementary education.

To ensure the effectiveness of such media, its development must be grounded in a comprehensive needs analysis. The use of interactive digital media in elementary education is justified by increasing evidence that multimedia-based learning environments enhance student engagement, cognitive processing, and knowledge retention compared to conventional text-based instruction (Mayer, 2024; Sweller, 2022). In hybrid and post-pandemic educational contexts, digital media have become a primary reference for bridging home and school learning experiences, enabling continuity and flexibility in students' learning processes (Borup et al., 2020; Ortiz-Rojas et al., 2025). Furthermore, ethnographic digital approaches have been shown to deepen students' sociocultural understanding and foster meaningful contextual learning (Jensen et al., 2022; Giráldez et al., 2022). Therefore, developing interactive ethnographic media requires systematic needs identification to ensure alignment between students' learning behavior at home and instructional design practices at school. According to (Yundayani et al., 2017), needs analysis serves as the initial phase of instructional design aimed at identifying gaps between actual and ideal learning conditions. In this study, the needs analysis was conducted across six primary aspects pedagogical, technical, cognitive, aesthetic, sociocultural, and evaluative which are integrated into four core instructional components: learners, teachers, media, and instructional design (Mayer, 2024). This multidimensional approach is further strengthened through correlation analysis between students' home learning activities and their media needs at school, providing empirical evidence to support culturally grounded digital media design.

To the best of the authors' knowledge, there has been limited research directly connecting the needs analysis for developing interactive ethnographic media with home learning processes in the context of cultural education at the elementary level. Most previous studies have focused on digital media development or the application of collaborative learning as separate entities, without considering the interplay between home and school learning environments a reality that has become increasingly relevant in the post-pandemic educational landscape. Therefore, the novelty of this study lies in empirically integrating a multidimensional needs analysis with correlation testing between home learning activities and the need for interactive ethnographic bumper videos in elementary cultural education. Unlike previous studies that examined digital media development or collaborative learning separately, this research statistically links home and school learning contexts within a single analytical framework. The findings are expected to provide an empirical foundation for culturally grounded and collaborative digital media design, while supporting the sustainable implementation of the current curriculum.

METHODS

This study was conducted from July to August 2025 in three elementary schools in South Sumatra Province, namely SD Islam Az-Zahra Palembang, SD Negeri 19 Telang Kelapa, and SD Negeri 8 Muara Telang Banyuasin. The study employed a quantitative correlational approach to examine the relationship between home learning activities and the need for interactive ethnographic bumper videos based on Collaborative Learning in elementary cultural education. This approach was selected because it allows systematic measurement of relationships between variables and identification of trends in students' and teachers' perceived needs (Creswell et al., 2021; Usunobun & Ekakitie, 2020).

The analysis focused on four main components students, teachers, learning media, and instructional design which were evaluated through six dimensions of needs: pedagogical, technical, cognitive, aesthetic, sociocultural, and evaluative (Mayer, 2024). The respondents consisted of 330 students (160 males and 170 females) and 12 fourth-grade teachers, selected using purposive sampling based on their active involvement in project-based learning and digital media use.

The instructional design dimension was assessed through a separate set of questionnaire items completed by the same 12 classroom teachers. Although the respondents were identical, the constructs measured for teacher needs and instructional design needs were operationally distinguished to avoid conceptual overlap.

The research instruments included questionnaires, observations, and semi structured interviews. The questionnaire was developed based on six aspects of home learning activities and four components of media needs, comprising a total of 20 statement items using a five point Likert scale (1=strongly disagree to 5=strongly agree). Observations were used to map the practices of cultural learning both in the classroom and at home, while semi structured interviews explored teachers' perceptions of the use of collaboration based digital media.

Content validity was determined through expert judgment involving three educational technology experts. The results of the validity test showed that all items had item total correlation coefficients (r) ranging from 0.45 to 0.78 (>0.30), indicating that they were valid. The Cronbach's Alpha reliability coefficients were 0.92 for media needs and 0.89 for home learning activities. Both coefficients fall within the very high reliability category (≥ 0.80), indicating that the research instruments were appropriate and could be used consistently.

The collected data were analyzed using percentage analysis to describe the level of need in each aspect and Spearman's Rank correlation (r_s) to measure the relationship between home learning activities and the need for learning media (Ranzato et al., 2021).

The results of these analyses provide empirical evidence to explain the statistical relationship between home learning activities and perceived media needs, serving as analytical insights rather than constituting a product development procedure.

Table 1. Blueprint of Needs Analysis

No	Sub-Aspect	Students	Teachers	Media	Instructional Design
Statement					
I	Pedagogical	1-4	1-4	1-4	1-4
II	Technical	5-8	5-8	5-8	5-6
III	Cognitive	9-12	9-12	9-10	7-10
IV	Aesthetic	13-16	13-16	11-14	11-13
V	Sociocultural	17-20	17-20	15-20	14-15
VI	Evaluative	21-24	21-24	21-24	16-17

(Modified from Raharjo et al., 2023)

Based on the previously developed needs analysis, six key aspects pedagogical, technical, cognitive, aesthetic, sociocultural, and evaluative were identified as the foundation for developing the research instruments. The researcher also included 20 additional statements to reflect students' home learning activities related to these six dimensions.

Table 2. Aspects of Home Learning Activities

Aspect	Indicator	Statement Items
Pedagogical	Learning strategies and independence	1-3
Technical	Access to and use of devices	4-6
Cognitive	Concept understanding and reasoning	7-9
Aesthetic	Visual appeal of media	10-13
Sociocultural	Engagement and local values	14-16
Evaluative	Reflection and feedback	17-20

Data Analysis Techniques

The data were analyzed using two complementary approaches: descriptive quantitative analysis and inferential correlation analysis.

1. Descriptive Analysis (Percentage)

This technique was used to describe the level of need for each aspect, calculated using the following formula: $P = \frac{f}{N} \times 100 \%$

where:

P = percentage

f = total score obtained

N = maximum possible score

The resulting percentages were categorized according to levels of need (low, moderate, high, and very high), as shown in Table 5.

2. Correlation Analysis (Spearman's Rank)

Spearman's Rank Correlation (rs) was applied to measure the relationship between home learning activities and the need for learning media, with a significance level of 5% ($p < 0.05$). The strength of correlation values was interpreted using the categories presented in Table 4.

Table 3. Rating Scale for Needs Analysis

Score	Rating Category
1	Strongly Disagree
2	Disagree

3	Neutral
4	Agree
5	Strongly Agree

Table 4. Correlation Categories

Correlation Coefficient (rs / r) Range	Strength of Relationship
0.00-0.19	Very Weak
0.20-0.39	Weak
0.40-0.59	Moderate
0.60-0.79	Strong
0.80-1.00	Very Strong

Table 5. Categories of Need Levels

Percentage (%)	Need Level Category
0 – 25	Very Low
26 – 50	Low
51 – 75	Moderate
76 – 100	high

The results of this analysis provided an empirical foundation for designing a model of digital learning media development in the form of interactive ethnographic bumper videos that are relevant, engaging, and aligned with the characteristics of elementary school students.

RESULTS & DISCUSSION

The needs analysis was conducted through observations, interviews, and questionnaire distribution involving 330 fourth-grade students (160 males and 170 females) and 12 classroom teachers from SD Islam Az-Zahra Palembang, SDN 19 Talang Kelapa, and SDN 8 Muara Telang, all located in South Sumatra Province. The collected data were analyzed descriptively using a quantitative approach, applying percentage analysis to identify the level of need for instructional media and conducting a Spearman's Rank Correlation (rs) test to determine the relationship between home learning activities and the need for learning media that support Collaborative Learning.

The results of these analyses are presented in the following tables.

1. Students' Needs Analysis

The following table presents the results of the students' needs analysis questionnaire:

Table 6. Results of Students' Needs Analysis Questionnaire

Aspect	Percentage (%)	Need Category	Correlation (rs)	Interpretation
Pedagogical	84.4	Very High Need	0.72	Strong
Technical	81.9	High Need	0.70	Strong
Cognitive	86.7	Very High Need	0.75	Strong
Aesthetic	88.1	Very High Need	0.73	Strong
Sociocultural	85.6	Very High Need	0.74	Strong
Evaluative	83.3	Very High Need	0.71	Strong

The analysis results indicate that all elements related to students' needs fall within the high to very high categories, with the highest percentage observed in the aesthetic element (88.1%), followed by the cognitive (86.7%) and sociocultural (85.6%) elements.

The technical element (81.9%) recorded the lowest percentage, although it still belongs to the high-need category. This comparison demonstrates that students place greater importance on visually engaging media that enhance their understanding of local cultural concepts, rather than on technical elements such as device accessibility and usage. Furthermore, the correlation between students' needs and home learning activities yielded a coefficient value of $r_s=0.70-0.75$ ($p<0.05$), indicating a strong and statistically significant relationship.

2. Teachers' Needs Analysis

The following table presents the results of the teachers' needs analysis questionnaire.

Table 7. Results of Teachers' Needs Analysis Questionnaire

Aspect	Percentage (%)	Need Category	Correlation (rs)	Interpretation
Pedagogical	86.5	Very High Need	0.76	Strong
Technical	83.7	Very High Need	0.73	Strong
Cognitive	85.8	Very High Need	0.75	Strong
Aesthetic	87.4	Very High Need	0.74	Strong
Sociocultural	84.9	Very High Need	0.73	Strong
Evaluative	82.8	Very High Need	0.72	Strong

The results for teachers reveal a significant need for learning aids across all dimensions, with the highest score in the aesthetic aspect (87.4%) and the lowest in the evaluative aspect (82.8%). This finding emphasizes that teachers value visual and interactive learning tools that also support reflective learning processes.

The Spearman's correlation coefficient was recorded at $r_s = 0.72-0.76$ ($p<0.05$), suggesting a strong and positive significant relationship between teachers' perceived needs and students' home learning activities. In particular, the pedagogical and cognitive aspects showed the highest correlation values, indicating that teachers play a crucial role in fostering students' learning independence through the implementation of collaborative digital media.

3. Media Needs Analysis

The results of the media needs analysis involving 12 classroom teachers are presented in the following table.

Table 8. Results of Media Needs Analysis Questionnaire

Aspect	Percentage (%)	Need Category	Correlation (rs)	Interpretation
Pedagogical	85.9	Very High Need	0.73	Strong
Technical	83.4	Very High Need	0.71	Strong
Cognitive	87.5	Very High Need	0.75	Strong
Aesthetic	88.7	Very High Need	0.74	Strong
Sociocultural	85.2	Very High Need	0.73	Strong
Evaluative	83.7	Very High Need	0.72	Strong

The findings show that the aesthetic (88.7%) and cognitive (87.5%) aspects rank the highest, suggesting that ideal media should not only be visually appealing but also enhance students' conceptual understanding. Although the technical (83.4%) and evaluative (83.7%) aspects scored slightly lower, they still reflect strong levels of demand. The correlation values ($r_s=0.71-0.75$; $p<0.05$) indicate a strong and significant positive relationship between the need for learning media and students' home learning activities, particularly in the cognitive and pedagogical dimensions.

4. Instructional Design Needs Analysis

The results of the instructional design needs analysis, based on responses from 12 classroom teachers, are shown below.

Table 9. Results of Instructional Design Needs Analysis Questionnaire

Aspect	Percentage (%)	Need Category	Correlation (rs)	Interpretation
Pedagogical	85.2	Very High Need	0.74	Strong
Technical	83.1	Very High Need	0.71	Strong
Cognitive	86.6	Very High Need	0.75	Strong
Aesthetic	88.3	Very High Need	0.74	Strong
Sociocultural	84.8	Very High Need	0.73	Strong
Evaluative	83.5	Very High Need	0.72	Strong

The results for instructional design reflect consistently high demand across all aspects, with the aesthetic (88.3%) and cognitive (86.6%) dimensions scoring the highest. Comparative analysis indicates that engaging, effective, and relevant learning approaches are prioritized over purely technical considerations.

The correlation analysis ($rs = 0.71-0.75$; $p < 0.05$) shows a strong and significant positive relationship among the dimensions, particularly between teaching methods and visual learning experiences. These findings emphasize the need for instructional designs that integrate home and school learning experiences in a harmonious and continuous manner.

Table 10. Summary of Correlations Between Media Needs and Home Learning Activities

Analytical Component	rs Range	Relationship Category	Significance
Students	0.70-0.75	Strong	$p < 0.05$
Teachers	0.72-0.76	Strong	$p < 0.05$
Media	0.71-0.75	Strong	$p < 0.05$
Instructional Design	0.71-0.75	Strong	$p < 0.05$

All elements demonstrate a strong and statistically significant positive relationship between the need for interactive ethnographic media and students' home learning activities. The highest correlation values were found in the cognitive and aesthetic dimensions, consistent across all four analytical categories. These results reaffirm that interactive ethnographic learning media play a crucial role in bridging formal and informal education, supporting the implementation of contextual collaborative learning rooted in local cultural values.

Discussion

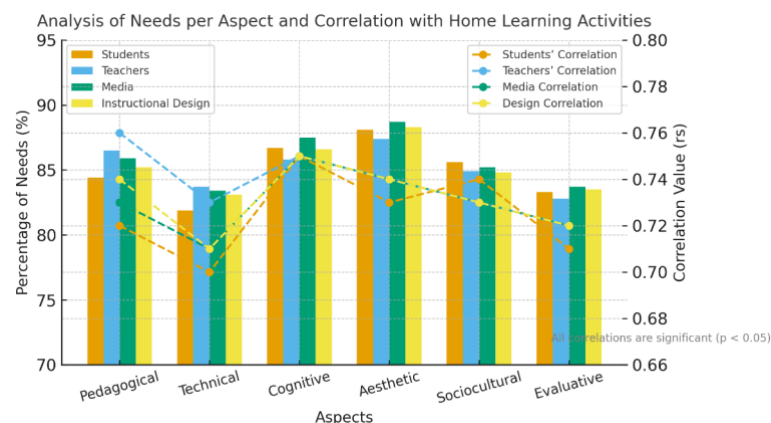


Figure 1. Analysis of Needs

The findings of this study indicate that all dimensions of needs pedagogical, technical, cognitive, aesthetic, sociocultural, and evaluative are categorized at very high levels across students, teachers, media, and instructional design components. The strong and statistically significant correlations ($r_s = 0.70-0.75$; $p < 0.05$) between home learning activities and media needs suggest that students' learning experiences outside school meaningfully influence their expectations and engagement within formal instructional settings. This confirms that learning environments at home and at school are interconnected rather than independent contexts (Borup et al., 2020).

Within the framework of cultural education, this relationship becomes particularly important. Learning media must not only convey knowledge but also facilitate the internalization of local values through meaningful visual and collaborative experiences (Giráldez et al., 2022). The prominence of aesthetic and cognitive dimensions among students reflects the necessity for media that balance visual appeal and conceptual clarity. According to the Cognitive Theory of Multimedia Learning (Mayer, 2024), meaningful learning occurs when learners are able to select, organize, and integrate verbal and visual information effectively. Well-structured multimedia elements may reduce extraneous cognitive load (Sweller, 2022) while enhancing retention and comprehension (Khaddafi & SE, 2025).

Furthermore, the strong correlation between home and school learning activities reinforces the Collaborative Learning model (Bilici & Yilmaz, 2024), which emphasizes active participation and knowledge construction through interaction. In contemporary digital contexts, particularly in post-pandemic education systems, digital platforms increasingly function as reflective spaces for independent and collaborative learning (Ortiz-Rojas et al., 2025). Therefore, interactive ethnographic videos can serve as contextual tools that connect formal and informal learning environments through culturally grounded narratives (Ali et al., 2024).

The high levels of teacher-related needs, particularly in pedagogical and aesthetic aspects, indicate that teachers seek instructional media that enhance effectiveness while sustaining engagement. The strong relationship between pedagogical and technical dimensions highlights the importance of Technological Pedagogical Content Knowledge (TPACK) (Mishra et al., 2023). Teachers' ability to integrate technology meaningfully into instruction depends on coherent alignment between pedagogy, content, and digital tools. Reflective professional development approaches such as lesson study have been shown to strengthen such competencies (Jiménez Sierra et al., 2023). Additionally, technology-enhanced assessment practices can support authentic and timely feedback mechanisms (Picasso, 2024; Nilforoshan et al., 2023). With adequate infrastructure and continuous professional support, teachers can optimize interactive ethnographic media for collaborative and flexible learning (Wibowo, 2023).

The consistently high demand for instructional media especially within aesthetic and cognitive dimensions indicates that effective digital resources must combine visual clarity, structured narratives, and evidence-based multimedia design principles such as coherence, signaling, and segmenting (Rahayu et al., 2024). Visual consistency and interactive navigation contribute to motivation and improved information processing (Ortiz-Rojas et al., 2025). Research also suggests that gamification elements aligned with instructional objectives can enhance engagement and academic performance (Ortiz-Rojas et al., 2025; Giráldez et al., 2022; Ali et al., 2024). Within an ethnographic framework, culturally contextualized content strengthens students' identity formation and social awareness (Abdalla & Moussa, 2024).

Similarly, the high demand observed in instructional design dimensions confirms that effective educational design must integrate pedagogical strategies, sociocultural context, and visual engagement (Sirait & Dewi, 2024; Dewi et al., 2024). The sociocultural

and evaluative needs further emphasize the importance of Culturally Responsive Teaching (Abdalla & Moussa, 2024) and Technology-Enhanced Assessment (Picasso, 2024). Such approaches ensure that learning remains culturally meaningful while incorporating adaptive feedback systems that promote reflection and continuous improvement (Laksana et al., 2021).

Overall, the empirical evidence demonstrates alignment between teacher readiness, student needs, and digital media integration in strengthening the connection between school-based and home-based learning. The high average level of need (85.3%) and strong correlation values confirm that collaborative and culturally grounded digital media represent an essential component of contemporary primary education (Borup et al., 2020). From a policy perspective, these findings are consistent with the principles of the Merdeka Curriculum, which emphasizes contextual, active, and character-based learning (Lasterman & Sihotang, 2024; Wibowo, 2023).

Importantly, this study does not constitute a product development (R&D) procedure; rather, it provides quantitative correlational evidence regarding the alignment between learners' needs and digital media design considerations within elementary cultural education.

This study is limited to three elementary schools in South Sumatra and relies primarily on self-reported questionnaire data, which may introduce response bias. Additionally, the correlational design does not permit causal interpretation. Future studies are recommended to expand the sample scope and integrate mixed-method or experimental approaches to further examine the effectiveness of interactive ethnographic media in improving cultural literacy and learning outcomes.

CONCLUSION

This study aimed to analyze the level of need for interactive ethnographic digital media in elementary cultural education and to examine the relationship between these needs and students' home learning activities. The findings reveal that all dimensions pedagogical, technical, cognitive, aesthetic, sociocultural, and evaluative are categorized at high to very high levels across students, teachers, media, and instructional design components.

Furthermore, the correlation analysis confirms a strong and statistically significant relationship ($r_s = 0.70-0.75$; $p < 0.05$) between home learning activities and the perceived need for instructional media. This indicates that students' learning experiences outside school meaningfully influence their expectations and engagement with digital learning resources in formal educational settings. Thus, home and school learning environments should be viewed as interconnected systems rather than separate domains.

Theoretically, this study strengthens the integration of the Cognitive Theory of Multimedia Learning and Collaborative Learning within a culturally responsive educational framework. The novelty of this study lies in empirically linking multidimensional needs analysis with correlation testing between home learning activities and the need for interactive ethnographic digital media in elementary cultural education an approach that has not been explicitly examined in prior research.

Practically, the findings provide evidence-based guidance for designing interactive ethnographic bumper videos that are visually engaging, pedagogically aligned, and culturally grounded. These results support the implementation of contextual and collaborative learning principles emphasized in the Merdeka Curriculum.

However, this study is limited by its correlational design and geographically confined sample. Future research is recommended to expand the scope across diverse regions and to incorporate experimental or mixed-method approaches to examine the

impact of interactive ethnographic media on students' cultural literacy and learning outcomes.

ACKNOWLEDGEMENT

The author expresses sincere gratitude to the supervising lecturers for their invaluable guidance, academic insights, and constructive feedback throughout the process of developing and refining this research. Special thanks are extended to SD Islam Az-Zahra Palembang, SD Negeri 19 Talang Kelapa, and SD Negeri 8 Muara Telang Banyuasin for their kind permission, support, and collaboration during the data collection phase. Heartfelt appreciation is also conveyed to the teachers and students who actively participated in this study. Their cooperation, time, and contributions were instrumental in ensuring the successful completion of this research. The author deeply acknowledges that the completion of this work would not have been possible without the assistance and goodwill of all those involved.

REFERENCES

- Abdalla, H., & Moussa, A. (2024). Culturally responsive teaching: Navigating models and implementing effective strategies. *Acta Pedagogica Asiana*, 3(2), 91–100.
- Ali, A., Maniboey, L. C., Megawati, R., Djarwo, C. F., & Listiani, H. (2024). *Media Pembelajaran Interaktif: Teori Komprehensif dan Pengembangan Media Pembelajaran Interaktif di Sekolah Dasar*. PT. Sonpedia Publishing Indonesia.
- Ananda, N., & Albina, M. (2025). Kajian Metode Etnografi untuk Penelitian di Bidang Pendidikan. *Jurnal Multidisiplin Ilmu Akademik*, 2(4), 368–379.
- Bhatia, K. V., Arora, P., & Gupta, S. (2024). Edtech platforms from below: a family ethnography of marginalized communities and their digital learning post-pandemic. *Learning, Media and Technology*, March, 1–15. <https://doi.org/10.1080/17439884.2024.2328693>
- Bilici, S., & Yilmaz, R. M. (2024). The effects of using collaborative digital storytelling on academic achievement and skill development in biology education. *Education and Information Technologies*, 29(15), 20243–20266. <https://doi.org/10.1007/s10639-024-12638-7>
- Borkovich, D. J. (2022). Digital ethnography: A disruptive qualitative approach to inquiry. *Issues in Information Systems*, 23(4), 119–134. https://doi.org/10.48009/4_iis_2022_111
- Borup, J., Graham, C. R., West, R. E., Archambault, L., & Spring, K. J. (2020). Academic communities of engagement: An expansive lens for examining support structures in blended and online learning. *Educational Technology Research and Development*, 68(2), 807–832.
- Creswell, C., Nauta, M. H., Hudson, J. L., March, S., Reardon, T., Arendt, K., Bodden, D., Cobham, V. E., Donovan, C., & Halldorsson, B. (2021). Research Review: Recommendations for reporting on treatment trials for child and adolescent anxiety disorders—an international consensus statement. *Journal of Child Psychology and Psychiatry*, 62(3), 255–269.
- Dewi, F. S., Dhafiana, N., Rohmah, S. R. U., & Rustini, T. (2024). Mengasah keterampilan sosial peserta didik: permainan tradisional sebagai sarana pembelajaran interaktif di kelas. *Sindoro: Cendikia Pendidikan*, 4(7), 1–10.
- Giráldez, V. A., Sanmiguel-Rodríguez, A., Álvarez, O. R., & Navarro-Patón, R. (2022).

- Can Gamification Influence the Academic Performance of Students? *Sustainability (Switzerland)*, 14(9), 1–17. <https://doi.org/10.3390/su14095115>
- 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>
- Jiménez Sierra, Á. A., Ortega Iglesias, J. M., Cabero-Almenara, J., & Palacios-Rodríguez, A. (2023). Development of the teacher’s technological pedagogical content knowledge (TPACK) from the Lesson Study: A systematic review. *Frontiers in Education*, 8(February). <https://doi.org/10.3389/educ.2023.1078913>
- Kemendikbudristek. (2023). *Bangkit Lebih Kuat*.
- Khaddafi, M., & SE, M. M. (2025). PROSES PENGEMBANGAN KONTEN MULTIMEDIA. *Multimedia*, 37.
- Laksana, D. N. L., Awe, E. Y., Sugiani, K. A., Ita, E., Rawa, N. R., & Noge, M. D. (2021). *Desain pembelajaran berbasis budaya*. Penerbit Nem.
- Lasterman, N. M., & Sihotang, H. (2024). Konsep Pendidikan Alamiah dalam Kurikulum Merdeka menurut Pandangan Jean–Jacques Rousseau. *Jurnal Pendidikan Tambusai*, 8(1), 1533–1544.
- Mayer, R. E. (2024). The Past, Present, and Future of the Cognitive Theory of Multimedia Learning. *Educational Psychology Review*, 36(1), 1–25. <https://doi.org/10.1007/s10648-023-09842-1>
- Mishra, P., Warr, M., & Islam, R. (2023). TPACK in the age of ChatGPT and Generative AI. *Journal of Digital Learning in Teacher Education*, 39(4), 235–251. <https://doi.org/10.1080/21532974.2023.2247480>
- Nilforoshan, H., Looi, W., Pierson, E., Villanueva, B., Fishman, N., Chen, Y., Sholar, J., Redbird, B., Grusky, D., & Leskovec, J. (2023). Human mobility networks reveal increased segregation in large cities. *Nature*, 624(7992), 586–592.
- Nurhayati, S., Liana, W., Judijanto, L., Lumbu, A., Asmara, A., Khotimah, K., Purnawan, P., Sudarman, S., Maduretno, T. W., & Tumober, R. T. (2025). *Model dan Metode Pembelajaran Inovatif*. PT. Sonpedia Publishing Indonesia.
- Oller, J., Engel, A., & Rochera, M. J. (2024). Bridging Learning Experiences In and Out of School: Students’ Views | Conectando Experiencias de Aprendizaje Dentro y Fuera de la Escuela: la Perspectiva del Alumnado. *International Journal of Educational Psychology*, 13(2), 83–103.
- Ortiz-Rojas, M., Chiluiza, K., Valcke, M., & Bolanos-Mendoza, C. (2025). How gamification boosts learning in STEM higher education: a mixed methods study. *International Journal of STEM Education*, 12(1), 1–14. <https://doi.org/10.1186/s40594-024-00521-3>
- Picasso, F. (2024). Technology-enhanced Assessment and Feedback Practices: A Systematic Literature Review to Explore Academic Development Models. *Research on Education and Media*, 16(2), 12–27. <https://doi.org/10.2478/rem-2024-0012>
- Raharjo, M., Safitri, E. R., & Harlin, H. (2023). Interactive Video Development With a Scientific-Based Ethnopedagogical Approach for Elementary School Students : An Analysis Review. *Pedagogia: Jurnal Pendidikan*, 13(1), 1–12. <https://doi.org/10.21070/pedagogia.v13i1.1604>
- Rahayu, P., Marmoah, S., & Budiharto, T. (2024). Analisis penerapan prinsip Mayer pada multimedia digital dalam pembelajaran matematika di kelas IV sekolah dasar. *Didaktika Dwija Indria*, 12(5), 357–363.
- Ranzato, E., Tolmie, A., & Herwegen, J. Van. (2021). *brain sciences The Home Learning Environment of Primary School Children with Down Syndrome and Those with Williams Syndrome*. 1–21.
- Salbi, S. (2025). *INTEGRASI MANAJEMEN PEMBELAJARAN BERBASIS PROYEK DAN*

KOLABORATIF DALAM PROFIL PELAJAR PANCASILA DI SMPN 8 SATAP ALLA. Universitas Islam Negri Palopo.

- Saputra, I., Sabri, I., Suryandoko, W., Sekti, R. P., Handyaningrum, W., Surabaya, U. N., & Surabaya, K. (2025). Development of interactive media for traditional music learning to foster students' critical reflection. *Curricula: Journal of Curriculum Development*, 4(1), 877–892. <https://ejournal.upi.edu/index.php/CURRICULA/>
- Schulz, L., Kürzinger, A., & Böttinger, T. (2025). Communication and collaboration in digital learning environments in elementary schools: findings from a videographic research project. *Learning Environments Research*, 28(2), 271–287. <https://doi.org/10.1007/s10984-025-09537-0>
- Setiawan, A. (2023). Pendidikan Anti Korupsi Sebagai Pembentukan Karakter, Perilaku Individu Melalui Potensi Mahasiswa Diperguruan Tinggi. *Sanskara Pendidikan Dan Pengajaran*, 1(01), 1–9.
- Sirait, R. A., & Dewi, E. Y. (2024). Peran teknologi pembelajaran pada desain pembelajaran. *Jurnal Budi Pekerti Agama Kristen dan Katolik*, 2(4), 232–242.
- Sweller, J. (2022). The role of evolutionary psychology in our understanding of human cognition: Consequences for cognitive load theory and instructional procedures. *Educational Psychology Review*, 34(4), 2229–2241.
- Usunobun, U., & Ekakitie, C. (2020). Restoration potential of *Celosia argentea* leaf on acetaminophen-induced liver toxicity. *Animal Research International*, 17(2), 3674 – 3681. <https://www.ajol.info/index.php/ari/article/view/199327>
- Wibowo, H. S. (2023). *Pengembangan Teknologi Media Pembelajaran: Merancang Pengalaman Pembelajaran yang Inovatif dan Efektif*. Tiram Media.
- Yundayani, A., Emzir, E., & Rafli, Z. (2017). Need Analysis: the Writing Skill Instructional Material Context for Academic Purposes. *English Review: Journal of English Education*, 6(1), 59. <https://doi.org/10.25134/erjee.v6i1.771>