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Effectiveness of museum visits: attitude and learning of history

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ABSTRACT

This quasi-experimental study investigates the effectiveness of museum visit on 6th-grade students' attitude towards and learning of history. The study engaged 120 students in the museum visit intervention. That includes, 60 students in the experimental group and 60 students in the control group. The study design included pre-test and post-test measures. The study administered an achievement test and an attitude scale toward history. The study analyzed the data using the repeated measures analysis of variance (ANOVA) statistical test. The study's result revealed that the experimental group outperformed the control group in achievement test scores of histories. The museum-visit group expressed a more positive attitude towards history learning and engagement. These findings underscore museums' potential as experiential learning environment, offering knowledge and fostering a positive attitude towards history. The study recommends the future researchers to conduct similar empirical studies in science subjects as a venue for place-based pedagogy in the Indian context.

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1. INTRODUCTION

Interest in subjects develops among the students in the school, although learning cannot be confined to the four walls of the classroom [1]. Outside-classroom learning is essential in today's society [2]. There are different places for learning; a museum is one of the places. Through museum field trips, students engage in interactive, hands-on exhibits [3]. The museum field trip also helps the students increase their motivation to learn [4]. In addition to this, museum visits promote an active cultural and educational process [5].

History learning through museum visits provides a realistic experience to learners as this process involves learning through historical objects and artifacts. This also improves the students' experiential learning and constructivist learning [6]. Experiential learning through museum visits enables students to learn collaboratively [7]. Study shows that pedagogical practices can also be followed in a museum setting for proper development of cognitive and affective domains [8]. Regarding the cognitive domain, it is found that students' achievements in math and science have improved with museum visits [9]. Students' history learning scores have also improved through field trips to museums [10]. Another study shows that field trips promote inquiry-based learning and a better understanding of the subject geography [11]. It is also found that museum laboratory activities significantly support biology teaching [12]. Recently, the studies found that students are getting more interested in environment-related subjects and there is a positive change in their attitude through museum visits [13], [14]. Similarly, the study of the affective domain revealed that museum visits improve attitudes and motivation toward science [15], [16]. Attitudes towards art classes are also improved through museum visits [17]. Another study reported that museum visits positively impact students' attitudes toward nature [18]. Similarly, museum visit helps the students to develop a positive attitude towards

cultural heritage education [19]. Regarding knowledge retention, the study revealed that museum visit helps in better knowledge retention of the students [20], [21]. The students will explore the artifacts exhibited in the museum and will be able to interact with each other, which will help them foster positive cognitive development [22]. Students' active engagement is another factor that is facilitated through museum visits [23]. Museums provide various methods of learning opportunities such as technology-integrated game-based learning method, which facilitates active learning strategy in museum settings [24]–[28].

Besides the students, museum visits are also effective for prospective teachers [29]. However, there may be some restraints for the teachers to follow the museum's pedagogical practices, which can be linked with the classroom curriculum. Therefore, museum educators can take steps to train the teachers so that they can incorporate museum pedagogies into the classroom curriculum [30]. Creating awareness among the pre-service teachers is an important aspect that will help them to get acquainted with museum-related pedagogies [31]. With innovative practices such as proper collaboration between schools and museums, there may be a possibility to integrate museum pedagogies with the school curriculum [32]. For example, museum pedagogical models could be useful in fostering authentic historical learning through museum objects [33]. Similarly, a study from Ukraine recently revealed that teachers and museum staff cooperated to teach the alphabet and new words to preschool children through a gaming method [34]. It is easy to monitor museum education skill sets when museum-related activities are integrated into classrooms [35]. However, there is a difference of opinion on the context of urban and rural teachers conducting field trips to museums. As urban areas have more museums than rural areas, urban teachers can frequently conduct field trips to museums [36]. On the other hand, rural teachers miss the opportunity to conduct field trips to museums due to the minimum number of museums in rural areas [37]. Integrating virtual museums into classroom settings could be an alternative way to address this issue [38].

It is evident from the extensive literature review that Western countries are very prominent in researching field trips to museums. As India contains a considerable number of museums, these museums can be utilized for educational purposes [39]. Indian educational thinkers such as Rabindranath Tagore favored experiential and constructivist learning, possibly outside classroom learning [40], [41]. In addition, utilizing museums for teaching and learning is mentioned explicitly in Indian educational policies, which will help the students build connections with various school subjects [42], [43]. Surprisingly, there are limited studies on the effectiveness of museum visits from the Indian context. Learning history is equally important to science learning [44]. Therefore, the present study aims to determine the effectiveness of museum visits on students' learning and attitude toward history from the Indian context. Hence, these research questions determined the effectiveness of museum visits on students' learning history and the effectiveness of museum visits on attitude toward history.

2. RESEARCH METHOD

The quasi-experimental model with pre-test and post-test control and experimental group design was employed in the study. The participants were 6th-grade students of secondary schools from India in the academic year 2022. A randomized sampling method was applied to select the schools from India [45]. One hundred twenty students were included in the study group of the research. The experimental group students (N=60) visited the museum, while the control group students (N=60) did not visit it. After one month, a delayed post-test was conducted in history learning.

The study administered two instruments. Achievement tests were used to measure pre-test, post-test, and delayed-post-test scores in history. The attitude scale was applied to the present context with a 5-point Likert scale ranging from 'strongly agree' to 'strongly disagree' to measure pre- and post-test attitudes towards history. Researchers validated the tools through a panel of experts. The suggestions provided by the experts were incorporated into the tool's final form and established the reliability. The researcher has taken steps to keep the data anonymous and confidential. The data is encrypted and accessible only to the researchers. The data obtained is fed into Microsoft Excel and imported to SPSS version 29 for data analysis [46]. Before the research process, the achievement test and attitude scale were applied to 40 sixth-grade students to check the reliability of those who were not applied in the main experimental process. The reliability of the instrument was established using Cronbach alpha reliability statistics, and it found that the reliability coefficient for students' attitudes toward history is 0.661. The reliability coefficient for learning history is 0.705 [47]. Indicating that the instrument is highly reliable [48]. Proper permission was taken from the school administration, and a consent form was collected from the parents [49]. The researcher took necessary pre-visit preparation, for example, mapping of the content before taking the students to the museum. Transportation, refreshment, and proper timing were planned before the museum visit.

3. RESULTS

The study employed repeated measures (ANOVA) to test the statistical significance of the overall performance in the present study. The data obtained is fed into Microsoft Excel and imported to SPSS version 29 for data analysis [50]. Table 1 represents the descriptive statistics of pre, post, and delayed post-tests of experimental and control groups for learning history.

Table 1. Descriptive statistics of pre, post, and delayed post-test of experimental and control groups for learning history

	Group	Mean	Std. Deviation	N
Pre-test	Experimental	7.70	4.6834	60
	Control	7.30	2.1730	60
	Total	7.50	3.6409	120
Post-test	Experimental	24.67	3.3087	60
	Control	19.23	4.4250	60
	Total	21.95	4.7540	120
Delayed post-test	Experimental	23.05	4.0954	60
	Control	14.38	4.5504	60
	Total	18.72	6.1281	120

From Table 1, it is revealed that the pre-test mean of the experimental group is (M=7.70) and the pre-test mean of the control group is (M=7.30). The post-test mean of the experimental group is (M=24.67), and the post-test mean of the control group is (M=19.23). The delayed post-test mean of the experimental group is (M=23.05), and the delayed post-test mean of the control group is (M=14.38). Table 2 represents a pairwise comparison of repeated measures ANOVA of pre-, post, and delayed post-test of the experimental and control groups' learning history.

Table 2. Repeated measured ANOVA pairwise comparison for learning history

Time	(I) Group	(J) Group	Mean difference (I-J)	Std. error	Sig.[b]	95% Confidence interval for difference[b] Lower bound	Upper bound
1	Experimental	Control	.400	.667	.550	-.920	1.720
	Control	Experimental	-.400	.667	.550	-1.720	.920
2	Experimental	Control	5.442*	.713	<.001	4.029	6.854
	Control	Experimental	-5.442*	.713	<.001	-6.854	-4.029
3	Experimental	Control	8.675*	.790	<.001	7.110	10.240
	Control	Experimental	-8.675*	.790	<.001	-10.240	-7.110

Based on estimated marginal means: (*)=The mean difference is significant at the .05 level; ([b])=Adjustment for multiple comparisons: Bonferroni

Table 2 reveals no significant difference (*P*=.550) between the experimental and control groups in the pre-test score. A significant difference was noticed in post-test and delayed post-test scores of histories learning between the experimental and control groups (*P*=0.001). Table 3 represents the descriptive statistics of experimental and control group pre and post-tests for attitude towards history.

Table 3. Descriptive statistics of pre, post-test of experimental and control groups for attitude towards history

	Group	Mean	Std. deviation	N
Pre-attitude	Experimental	53.92	5.835	60
	Control	57.40	8.954	60
	Total	55.66	7.726	120
Post-attitude	Experimental	62.97	4.254	60
	Control	56.32	8.631	60
	Total	59.64	7.554	120

Table 3 reveals that the pre-test score of the experimental group is (M=53.92), and the pre-test score of the control group is (M=57.40). The post-test score of the experimental group is (M=62.97), and the control group's post-test score is (M=56.32). The post-test mean of the experimental group is higher than the post-test mean score of the control group. Table 4 represents a pairwise comparison of repeated measures ANOVA to determine the overall differences in pre and post-test attitudes towards the history of the experimental and control groups.

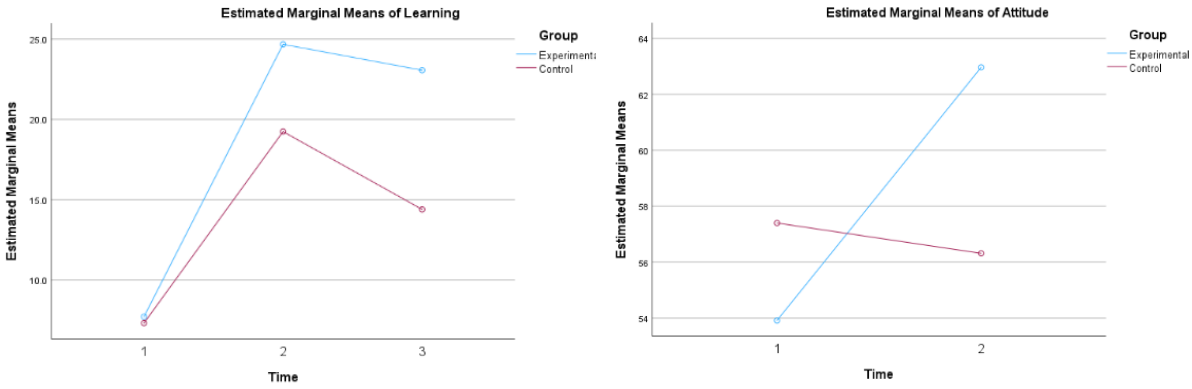
Table 4 reveals, through repeated measures ANOVA, the overall differences in pre- and post-test attitudes toward the history of the experimental and control groups. The result revealed that there is no significant difference (*P*=.013) between the pre-test scores of the experimental group and the control group. Conversely, a significant difference (*P*=.001) in attitude toward history has been noticed between the experimental and control groups in post-test scores. After the museum visit, the experimental group showed an improvement in attitude, whereas the control group had no improvement in attitude toward history.

Figure 1 represents the estimated marginal means of the experimental and control groups, Figure 1(a) for learning history, and Figure 1(b) for attitude toward history. The estimated marginal mean plot in Figure 1(a) shows that the experimental group outperformed the control group in learning history after the museum visit, and stability is noticed in learning. The estimated marginal mean plot in Figure 1(b) shows a considerable improvement in the marginal mean score of attitudes toward the history of the experimental group after the museum visit. In contrast, no improvement has been noticed for the control group.

Table 4. Repeated measured ANOVA pairwise comparison for attitude towards history

Time	(I) Group	(J) Group	Mean difference (I-J)	Std. error	Sig.[b]	95% Confidence interval for difference[b] Lower bound	Upper bound
1	Experimental	Control	-3.483*	1.380	.013	-6.216	-.751
	Control	Experimental	3.483*	1.380	.013	.751	6.216
2	Experimental	Control	6.650*	1.242	<.001	4.190	9.110
	Control	Experimental	-6.650*	1.242	<.001	-9.110	-4.190

Based on estimated marginal means: (*)=The mean difference is significant at the .05 level; ([b])=Adjustment for multiple comparisons: Bonferroni



(a) (b)

Figure 1. Profile plot of experimental group and control group in (a) learning history and (b) attitude towards history

4. DISCUSSION

4.1. Learning history

The present study intended to measure the effect of museum visits on learning and attitude toward history from the Indian context. Regarding the first research question, the study found that the experimental and control groups showed significant differences in learning history and attitude toward history at different points in time. It is worth mentioning that experimental groups have performed better than the control groups in post-test scores of learning history (Post-test: M experimental group = 24.67>M control group = 19.23). The result is consistent with another similar study, which states that students visiting museums have scored higher in science and mathematics subjects [9]. The present study aligns with another earlier study, which states that students' history learning scores have also improved through museum field trips [10]. The present study agrees with another recent study, which found that students are getting more interested in environmental subjects through museum visits [13]. In addition, it reveals that no significant difference has been found in the experimental group's post-test mean (M=24.67) and delayed post-test mean (M=23.05). At the same time, there is a steady decline in the control group's mean score from the post-test (M=19.23) to the delayed post-test (M=14.38). The museum is the perfect venue to facilitate an interactive learning environment. Therefore, the findings are in alignment with the research studies that state interaction and participation led to significantly better knowledge retention for students [20], [21].

Pairwise comparison of repeated measures ANOVA of pre-, post, and delayed post-test of the experimental and control groups' learning history revealed no significant difference (*P*=.550) in the pre-test between the experimental and control groups. After the museum visit, a significant difference (*P*=0.001) was observed between the experimental and control groups in the post-test. Similarly, the experimental and control groups have noticed a significant difference in delayed post-test scores of history learning (*P*=0.001). The estimated marginal mean plot shows that the experimental group outperformed the control group in learning history after the museum visit, and the history learning score is stable after one month. In comparison, there is a steady decline in the control group's mean score in learning history after one month.

4.2. Attitude towards history

About the second research question, while looking into the attitude score, it is found that students of experimental groups have developed a positive attitude towards history after museum visit in comparison to the control group (Post-attitude: M experimental group = 62.97 >M control group = 56.32). This result agrees with a study that reveals that museum visits positively impact students' attitudes toward nature [18]. The present study is consistent with a recent study that states that museum visits for learning science create a positive attitude towards the science subject [15]. Attitude towards art classes are also improved through museum visits [17]. Museum visit also foster positive attitude towards environmental subjects [14]. The present study also agrees with another study, which states that students generate a positive attitude toward cultural heritage education through museum visits [19]. A pairwise comparison of repeated measures ANOVA found no significant difference (P=.013) between the pre-test scores of the experimental group and the control group in attitude toward history. In contrast, a significant difference (P=.001) in attitude toward history was found between the experimental and control groups in post-test scores. The estimated marginal mean plot shows a considerable improvement in the marginal mean score of attitude toward the history of the experimental group after the museum visit. In contrast, no improvement in attitude towards history has been noticed for the control group.

4.3. Implication of the findings

The study finds out the effectiveness of museum visits on students' learning and attitude toward history from the Indian context. After museum visits, students' history learning scores and attitudes toward history have improved. In addition, students can remember the subject content well after field trips to the museum. The study implies that experiential and constructivist learning environments are created through museum field trips [6]. Authentic historical learning through museum objects could be possible through museum pedagogical model [33]. The study will be beneficial for history teachers to incorporate museum visits into the history course curriculum as a complementary part. The study will be beneficial for the parents to encourage their children to participate in school based fieldtrip to museum. The study also implies the proper usability of Indian heritage resources for teaching and learning purposes. Therefore, to make the trainee teachers aware, the study suggests including museum visit pedagogy in the teacher training program in India.

5. CONCLUSION

As intended, the study achieved its objectives. A museum is appropriate for learning social science subjects such as history. The study has found that students' learning and attitudinal scores toward history have improved after museum visits. As there are a considerable number of museums in India, through museum visits, students can learn history in a relevant way; children will observe the artifacts and be able to relate to their textbooks. Children can develop scientific and cultural temperament by adequately utilizing the country's heritage resources. Furthermore, the study suggests conducting seminars and conferences on museum visit pedagogy in the teachers' training program to acquaint the trainee teachers with field trips to museums. The study also suggests ensuring a proper alliance between the school and museum authority to make the visit to the museum significant. The study is limiting itself to 120 students in India. A similar study in middle-income countries can verify the consistency of the result obtained in the present study with a large sample open for further research.

The Western countries frequently conduct museum field trips. The school-museum collaboration for academic purposes is highly noticeable in Western countries. On the other hand, there are limited studies from the Indian context. Therefore, the study recommends that future researchers conduct similar empirical studies in science subjects as a venue for place-based pedagogy in the Indian context.

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REFERENCES

[1] J. H. Falk, S. Pattison, D. Meier, D. Bibas, and K. Livingston, "The contribution of science-rich resources to public science interest," *Journal of Research in Science Teaching*, vol. 55, no. 3, pp. 422–445, 2018, doi: 10.1002/tea.21425.

[2] V. De Wilde, M. Brysbaert, and J. Eyckmans, "Learning English through out-of-school exposure. Which levels of language proficiency are attained and which types of input are important?" *Bilingualism*, vol. 23, no. 1, pp. 171–185, 2020, doi: 10.1017/S1366728918001062.

[3] J. D. Adams and P. Gupta, "Informal science institutions and learning to teach: an examination of identity, agency, and affordances," *Journal of Research in Science Teaching*, vol. 54, no. 1, pp. 121–138, 2017, doi: 10.1002/tea.21270.

[4] D. Gata, E. Valakos, and M. Georgiou, "Engaging and assessing students via a museum educational program," *Eurasia Journal of Mathematics, Science and Technology Education*, vol. 19, no. 10, p. em2334, 2023, doi: 10.29333/ejmste/13574.

[5] I. Kacane, "Heritage sites as means of bringing cultural awareness: intergenerational attitudes towards visiting museums," *INTED2021 Proceedings*, vol. 1. IATED, pp. 8261–8266, 2021. doi: 10.21125/inted.2021.1679.

[6] R. Rugaiyah, "Experiential learning through field trips: an overview," *AL-ISHLAH: Jurnal Pendidikan*, vol. 14, no. 4, pp. 6255–6266, 2022, doi: 10.35445/alishlah.v14i4.1972.

[7] J. C. Jones and S. Washko, "More than fun in the sun: the pedagogy of field trips improves student learning in higher education," *Journal of Geoscience Education*, vol. 70, no. 3, pp. 292–305, 2022, doi: 10.1080/10899995.2021.1984176.

[8] K. Y. Milovanov, E. Y. Nikitina, N. L. Sokolova, and M. G. Sergeyeva, "The creative potential of museum pedagogy within the modern society," *Espacios*, vol. 38, no. 40, 2017.

[9] M. Kayhan Altay and E. Yetkin Özdemir, "The use of museum resources in mathematics education: a study with preservice middle-school mathematics teachers," *Journal of Education for Teaching*, vol. 49, no. 4, pp. 616–629, 2023, doi: 10.1080/02607476.2022.2150534.

[10] L. Yeo, S. L. Samsudin, C. Heng, E. bin Sani, and T. Y. H. Sim, "A case study on the incorporation of museum and artifact-based fieldtrips in the teaching of ancient Singapore history: teacher reflections and student learning," *Studies in Singapore Education: Research, Innovation & Practice*. Springer Singapore, 2021, pp. 221–243. doi: 10.1007/978-981-15-8233-2_11.

[11] J. Lertpradit, "The role of geographical fieldwork in social studies education program: the comparative studies in Thailand," *Special Education*, vol. 2, no. 43, pp. 3256–3260, 2022.

[12] G. Palmieri, P. Irato, P. Nicolosi, and G. Santovito, "A day at the museum. laboratory teaching in the museum of zoology at the university of padua for primary school," *EDULEARN19 Proceedings*, vol. 1, pp. 4089–4097, 2019.

[13] C. H. Punzalan and L. M. Escalante, "Museum trip to enrich environmental awareness and education," *International Electronic Journal of Environmental Education*, vol. 11, no. 1, pp. 13–23, 2021, doi: 10.18497/iejeegreen.759224.

[14] T. Schmäing and N. Grotjohann, "Out-of-school learning in the wadden sea: the influence of a mudflat hiking tour on the environmental attitudes and environmental knowledge of secondary school students," *International Journal of Environmental Research and Public Health*, vol. 20, no. 1, p. 403, Dec. 2023, doi: 10.3390/ijerph20010403.

[15] H. I. Yildirim, "The impact of out-of-school learning environments on 6th grade secondary school students attitude towards science course," *Journal of Education and Training Studies*, vol. 6, no. 12, p. 26, 2018, doi: 10.11114/jets.v6i12.3624.

[16] H. İ. Yildirim, "The effect of using out-of-school learning environments in science teaching on motivation for learning science," *Participatory Educational Research*, vol. 7, no. 1, pp. 143–161, 2020, doi: 10.17275/per.20.9.7.1.

[17] S. Genç and S. Buyurgan, "The effect of museum activities based on games to the student achievement and their attitude towards art classes," *İnönü University Journal of the Faculty of Education*, vol. 19, no. 3, pp. 687–699, 2019, [Online]. Available: http://acikerisim.bartin.edu.tr/handle/11772/2763.

[18] K. S. Hoover, "Evaluating impacts of a wetland field trip: a case study with urban middle school students," *Applied Environmental Education and Communication*, vol. 20, no. 3, pp. 203–220, 2021, doi: 10.1080/1533015X.2020.1754967.

[19] L. Almqvist Nielsen, "Prehistoric history in Swedish primary school education: pupils' expression of empathy after visiting a cultural heritage site," *Education 3-13*, pp. 1–15, 2023, doi: 10.1080/03004279.2023.2191631.

[20] R. C. Anderson, "Creative engagement: embodied metaphor, the affective brain, and meaningful learning," *Mind, Brain, and Education*, vol. 12, no. 2, pp. 72–81, 2018, doi: 10.1111/mbe.12176.

[21] L. Phillips, "Reminiscence: recent work at the British museum," *Touch in Museums: Policy and Practice in Object Handling*. Routledge, 2020, pp. 199–204. doi: 10.4324/9781003135616-17.

[22] T. Mujtaba, M. Lawrence, M. Oliver, and M. J. Reiss, "Learning and engagement through natural history museums*," *Studies in Science Education*, vol. 54, no. 1, pp. 41–67, 2018, doi: 10.1080/03057267.2018.1442820.

[23] C. Moseley, H. Summerford, M. Paschke, C. Parks, and J. Utley, "Road to collaboration: experiential learning theory as a framework for environmental education program development," *Applied Environmental Education and Communication*, vol. 19, no. 3, pp. 238–258, 2020, doi: 10.1080/1533015X.2019.1582375.

[24] M. C. Ćosović and B. R. Brkić, "Game-based learning in museums-cultural heritage applications," *Information (Switzerland)*, vol. 11, no. 1, p. 22, 2020, doi: 10.3390/info11010022.

[25] A. López-Martínez, A. Carrera, and C. A. Iglesias, "Empowering museum experiences applying gamification techniques based on linked data and smart objects," *Applied Sciences (Switzerland)*, vol. 10, no. 16, p. 5419, 2020, doi: 10.3390/APP10165419.

[26] B. Bossavit, A. Pina, I. Sanchez-Gil, and A. Urtasun, "Educational games to enhance museum visits for schools," *Educational Technology and Society*, vol. 21, no. 4, pp. 171–186, 2018.

[27] G. S. Prakasha, R. Sangeetha, S. M. Almeida, and A. Chellasamy, "Examining university students' attitude towards e-learning and their academic achievement during COVID-19," *International Journal of Information and Education Technology*, vol. 12, no. 10, pp. 1056–1064, 2022, doi: 10.18178/ijiet.2022.12.10.1720.

[28] G. S. Prakasha, "Active learning and student engagement in Indian teacher education," in *Handbook of Research on Active Learning and Student Engagement in Higher Education*. IGI Global, 2022, pp. 227–245. doi: 10.4018/978-1-7998-9564-0.ch011.

[29] M. M. Göksu, "Museum tour in social studies education: sample of Caucasian military history museum," *International Journal of Education Technology and Scientific Researches*, vol. 6, no. 15, pp. 1082–1122, 2021, doi: 10.35826/ijetsar.328.

[30] F. Fazzi, "CLIL 'beyond' the classroom: a pedagogical framework to bridge the gap between school and museum content and language integrated learning," *Università Ca' Foscari Venezia*, 2019, [Online]. Available: http://dspace.unive.it/handle/10579/14979
[31] T. Patterson, "Historians, archivists, and museum educators as teacher educators: mentoring preservice history teachers at cultural institutes," *Journal of Teacher Education*, vol. 72, no. 1, pp. 113–125, 2021, doi: 10.1177/0022487120920251.
[32] F. Tatiana and C. Larisa, "Some pedagogical aspects of museum education of pupils and students from the perspective of collaboration between the art museum and learning institutions," *Creative Education*, vol. 13, no. 03, pp. 794–802, 2022, doi: 10.4236/ce.2022.133052.
[33] Wasino and F. A. Shintasiwi, "Developing history teaching materials based on environment, museum batik Pekalongan," *Proceedings of the 1st International Conference on Education Social Sciences and Humanities (ICESSHum 2019)*. Atlantis Press, 2019. doi: 10.2991/icesshum-19.2019.9.
[34] O. Hnizdilova, I. Karapuzova, O. Vilkhova, and S. Bursova, "Museum pedagogy in Ukraine: challenges and achievements," *Journal of Museum Education*, vol. 48, no. 1, pp. 68–75, 2023, doi: 10.1080/10598650.2022.2147687.
[35] L. Corbisiero-Drakos, L. K. Reeder, L. Ricciardi, J. Zacharia, and S. Harnett, "Arts integration and 21st century skills: a study of learners and teachers," *International Journal of Education and the Arts*, vol. 22, no. 1, pp. 1–26, 2021, doi: 10.26209/ijea22n2.
[36] L. N. Ward, "The science museum field trip: a case study of urban teachers' perspectives, experiences and planning processes," 2020.
[37] A. Starrett, J. Yow, C. Lotter, M. J. Irvin, and P. Adams, "Teachers connecting with rural students and places: a mixed methods analysis," *Teaching and Teacher Education*, vol. 97, p. 103231, 2021, doi: 10.1016/j.tate.2020.103231.
[38] O. Okumuş and A. Vurgun, "Pre-service history teacher's opinions about the use of virtual museum applications in history courses," *Education Quarterly Reviews*, vol. 4, no. 2, 2021, doi: 10.31014/aior.1993.04.02.204.
[39] "National portal for museums," *Vikaspedia*. [Online]. Available: https://vikaspedia.in/education/childrens-corner/national-portal-for-museums
[40] N. Jha, "Rabindranath Tagore," *Prospects*, vol. 24, no. 3–4, pp. 603–619, 1994, doi: 10.1007/bf02195291.
[41] R. Cherian and G. S. Prakash, "Reflexivity through experiential learning in social work education: implications for signature pedagogy," *Journal of Social Work Education*, vol. 7, no. 4, pp. 17–26, 2022.
[42] National Council of Educational Research and Training (NCERT), "National Curriculum Framework 2005," 2005. [Online]. Available: https://en.wikipedia.org/wiki/National_Curriculum_Framework_2005
[43] National Council of Educational Research and Training (NCERT), "National Education Policy 2020," in Ministry of Human Resource Development, Government of India, 2020. [Online]. Available: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
[44] N. Anglia, "Why is it important to study history?" *Nord Anglia Education*, 2020. [Online]. Available: https://www.nordangliaeducation.com/news/2020/04/29/why-is-it-important-to-study-history
[45] A. E. Berndt, "Sampling methods," *Journal of Human Lactation*, vol. 36, no. 2, pp. 224–226, 2020, doi: 10.1177/0890334420906850.
[46] D. George and P. Mallery, *IBM SPSS Statistics 26 Step by Step*. Routledge, 2019.
[47] B. A. Anderson and H. Kim, "Test–retest reliability of value-driven attentional capture," *Behavior Research Methods*, vol. 51, no. 2, pp. 720–726, 2019, doi: 10.3758/s13428-018-1079-7.
[48] J. C. Nunnaly, *Psychometric theory*. McGraw-Hill, 1978.
[49] G. Head, "Ethics in educational research: review boards, ethical issues and researcher development," *European Educational Research Journal*, vol. 19, no. 1, pp. 72–83, 2020, doi: 10.1177/1474904118796315.
[50] C. M. Judd, G. H. McClelland, and C. S. Ryan, "Repeated-measures ANOVA," in *Data Analysis*. Routledge, 2018, pp. 260–291. doi: 10.4324/9781315744131-11.

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