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Research Article

Effect of Teaching Practices Enriched with Innovative Teaching Materials

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Abstract

The present research aims to investigate the effect of using innovative teaching materials in social studies on students' map literacy skills, academic achievement, and retention. The research was designed using the pre-test/post-test unequalized control group model, which is a type of quasi-experimental design. Academic achievement test, map literacy skill assessment developed by researchers, and comprehension learning outcomes assessments prepared by the Ministry of National Education in Türkiye were used as data collection tools. The data obtained from the tests and assessments were analyzed using the TAP and Jamovi statistical programs. Based on the analysis of map literacy skills, the research concluded that the pre-test scores of the experimental group and the control group did not show a statistically significant difference. Additionally, there was no statistically significant difference in the pre-test and post-test scores of the control group. On the other hand, the post-test scores of the experimental group showed a statistically significant difference. Based on the analysis of student responses in terms of academic achievement, there was no statistically significant difference between the pre-test scores of the experimental group and the control group, but the post-test scores of both the experimental group and the control showed a statistically significant difference. The research found that the experimental group showed a statistically significant difference in the retention of learning as measured one month after the completion of the implementation of the innovative teaching materials.

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Introduction

The interconnected global changes in the economic, environmental, cultural, social, and technological realms have had effects on the lifestyles of both societies and individuals. These changes have also had a significant impact on education and teaching processes. Certainly, the advancements in digital technology have had a profound effect on the learning domain (Republic of Türkiye Ministry of National Education [MEB]; 2021). When

contemplating the pivotal role of today's youth as future decision-makers, it becomes imperative to tailor educational and learning experiences in alignment with the needs and interests of these young individuals. The impact of education and teaching on the rising generation as producers and leaders in the digital world is undeniable. Concordantly, the positive effect of learning environments supported by innovative teaching practices on students' cognitive achievement is widely recognized (Flogie et al., 2019). The importance of real-life experiences in the learning and teaching process has been increasingly recognized, and the integration of emerging technology to facilitate experiential learning has become a current issue in education systems (Yıldırım, 2020). Social studies with its interdisciplinary nature in the education–learning process can be considered an appropriate subject to incorporate progressive teaching methodologies. Considering the mission of social studies in educating active citizenship, the use of computer technology has become a necessity for lessons that play a crucial role in cultivating countries and communities (Yeşiltaş & Sönmez, 2014).

Innovative Teaching Practice

Emphasizing innovation in the realm of education and learning stands as a pivotal facet in equipping individuals to excel in an ever-evolving contemporary landscape. To uphold this emphasis on innovation in education, meticulous focus on revitalizing and advancing teaching methods and educational management practices is imperative (Morozova, 2019). The primary target of education should not be limited to teaching the knowledge found in textbooks. It is essential to focus on promoting innovative thinking, fostering a creative learning environment, and equipping students with the competencies and proficiencies required by the era they live in (Kalyani & Rajasekaran, 2018). The emergence of new learners in today's world, shaped by various changes, necessitates the adoption of innovative teaching methods in order to meet their needs (Kırkız, 2020).

In conclusion, educational institutions hold a crucial responsibility for shaping the future of individuals. The concept of innovative learning emphasizes changing the teacher's teaching style and use and encouraging students to question, evaluate, and generate their own ideas (Upadhyay, 2020), fostering a sense of curiosity, creativity, and intellectual independence (Kalyani & Rajasekaran, 2018). In summary, innovative learning refers to a dynamic change (OECD, 2016) in the education system aimed at enriching the learning process.

Fostering cooperative and social competencies alongside cognitive competencies (Flogie et al., 2019) in innovative learning plays a key role in embracing lifelong learning and enhancing employability. Three implementation categories of Innovative Teaching were available. These categories are:

- Student-centered pedagogies aim to support meaningful and personalized learning experiences for students.
- Expanding learning beyond traditional classroom boundaries to foster optimal methods of knowledge creation and problem-solving tailored to today's dynamic world;
- Pedagogy actively endorses the incorporation of Information and Communication Technology (ICT) into educational objectives. The utilization of ICT in education is considered a means to enhance and broaden learning opportunities, rather than an isolated goal in and of itself (European Agency, 2011; OECD, 2016).

Traditional teaching, which occurs in a standardized and steady classroom environment (MEB, 2021: 2), may face challenges in fulfilling the knowledge demands of the 21st century. Therefore, the process of education and learning needs to be rejuvenated and enriched by incorporating innovative methods and techniques from student teaching to planning, implementation, assessment, and improvement (Kırkıç, 2020). The impact of technological advancements on communities and the learning and teaching processes indirectly leads to differences in the way educators respond to new expectations in the learning realm compared to methods and techniques that were used decades ago. (Lepičnik et al., 2020). The evolving dynamics between educators and learners, alongside the growing emphasis on learning centers, emphasize the imperative of implementing innovative teaching approaches within educational spheres. This emphasis is particularly crucial in fostering the acquisition of 21st-century skills (MEB; 2021).

Relationship Between Education and Innovativeness

In the modern age, the concept of innovativeness holds profound significance for the improvement and development of communities and serves as an investment in the future. Above all, innovation is a fundamental concept to create a difference as an individual. That community's ability to access technological sources and pursue the improvement of technological progress is critical to catching up with the pace of innovation. In addition to changing the perception of production, harnessing the power of knowledge and transforming it into innovative power is crucial for individuals to acquire new properties.

The acquisition of 21st-century skills has become significant because of their innovative features. The increasing importance of innovation and competition in the 21st century plays a vital role in shaping individuals' knowledge and skills. Accordingly, 21st century skills that enhance individuals' careers, daily lives, and active citizenship are being integrated into the educational system (Greenhill, 2010).

Education should be an important field to develop a skilled workforce, promote people who are innovative, produce new products, and give priority to innovative movements. (Ertuğruloğlu et al., 2024). The requirement of having a community with an insight into innovative education is considered essential in many developed and developing countries. The necessity of fostering a community with an understanding of innovative education is considered essential in many developed and developing countries. In particular, developed countries like the United States aim to acquire 21st-century skills among individuals by conducting studies based on these skills. In our developing country, Turkey, intends to acquire 21st-century skills by incorporating them into the educational programs (Karakuş & Uslu, 2021). Educators wield a crucial influence within the education system, holding a significant responsibility in imparting 21st-century skills. Teachers should consider 21st-century skills to cultivate students and make them innovative thinkers. Elçi's (2021) argument aligns with the importance of educational systems that should strive to appeal to the innovative individual by adapting and of educators who should keep pace with the demands of the 21st century. In addition to education, which is a cornerstone for creating awareness of innovation, educational institutions should also have an innovative dimension to foster future generations (Baran-Bulut & Güveli, 2023).

Innovative Learning Implementations in Education

Education institutions have a fundamental responsibility to educate individuals who can adapt to a rapidly changing world. For this reason, educational institutions must undergo obligatory changes in order to fulfill their responsibilities. The rapid expansion and integration of digital technologies into educational environments have transformed learning and teaching methodologies (Taşlıbeyaz, 2020). The new technologies used in education have led to updating the techniques and approaches used within the realms of learning and teaching, discovering fresh approaches and methodologies (Karaoğlan-Yılmaz & Öztürk, 2020). Technology empowers learners, educators, and stakeholders to participate in the evolution and transformation of the learning environment. (Groff, 2013). Innovation in the

educational learning process, which is at the center of our lives and plays an important role that no one can deny (Kurt, 2021) has become a necessity rather than a choice

In this context, Innovation in education is in fact addressed as an implementation aimed at increasing the effectiveness of learning, improving the learning and teaching process, and transforming schools. (Turan & Cansoy, 2021). Various elements, including educational programs, advancements in educational materials or textbooks, the infusion of technology into learning, and the engaged involvement of school stakeholders via diverse methods in promoting technology-enhanced education (Turan & Cansoy, 2021), all play pivotal roles in nurturing educational innovation. Innovation in education is closely linked to innovation in schools. According to the argument of Turan and Cansoy (2021), some examples of innovative educational methods used by innovative schools include:

- Different Assessment Methods: The assessment methods are diverse to evaluate the students. Portfolio, observation, and different assessment tools are used.
- Blended Learning: Informatics and web-based learning are used for students both inside and outside the school.
- Teacher Professional Cooperation: Teachers collaborate and work together to enhance the quality of education.
- Out-of-School Experience Opportunities: Offering opportunities for students such as internships and hands-on experience outside the traditional classroom.
- Community Participation: Students can create a sense of social responsibility by fostering community participation in education.
- Skills-Based Learning in the 21st Century: Skills-Based learning focuses on the acquisition and development of essential skills.
- Personalized Learning: The individual differences, needs, interests, and learning styles of the students are taken into account.
- Project-Based Learning: Lessons are structured around project-oriented or project-based learning approaches to foster inquiry among students.
- Flexible Learning Environment Designs: Designing a flexible learning environment aims to cater to individual work, group work, and collaboration.
- Participation of Families in Learning at School: The participation of families in learning settings is so essential for the learning journey of their children. Families are considered learning partners.

- Flexible Educational Programs: Flexible educational programs are an essential part of providing professional development opportunities to educators as well as students.
- Empowering Teaching and Learning Methods: Diverse innovative approaches in teaching and learning are actively employed to enhance educational delivery. The integration of new technologies and strategies continues to enrich the educational landscape.
- Cooperative-Based Learning: Cooperative learning is a powerful teaching and learning approach.
- Openness to Innovation and Willingness to Try New Implementations: School personnel, including teachers, administrators, and support staff, are open to creating a dynamic and forward-thinking learning environment.

The Present Study

The primary aim of this particular research study is to explore the impact of employing inventive teaching materials within social studies on students' map literacy skills, academic performance, and the sustained retention of learning. Aligned with this research objective, the study seeks to address the following inquiries:

1. Does a statistically significant disparity exist in map literacy pre-test scores between the experimental and control group?
2. Are there statistically significant differences in academic achievement pre-test scores among students in the experimental versus control group?
3. Do the pre-test and post-test scores within the experimental groups display statistically significant differences in terms of map literacy?
4. Are there statistically significant variations between the pre-test and post-test scores in map literacy within the control group?
5. Are there statistically significant differences in post-test scores related to map literacy between the experimental and control group?
6. Do the pre-test and post-test scores within the experimental groups exhibit statistically significant differences in academic achievement?
7. Are there statistically significant differences in academic achievement between the pre-test and post-test scores within the control group?
8. Do the post-test scores in academic achievement show statistically significant differences between the experimental and control group?

9. Is there a statistically significant difference in long-term retention of learning scores between the experimental and control group?

Method

Research Model and Experimental Procedure

The adoption of an experimental model, recognized as a quantitative research methodology, stands recommended for exploring causal relationships and delineating the impact of independent variables on dependent variables in a meticulously controlled and systematic approach (Kumandaş-Öztürk, 2019).

In situations where the use of a true experimental design isn't feasible or adequate, researchers may turn to quasi-experimental or weak-experimental as alternatives (Karasar, 2012). In educational research, achieving a true experimental design isn't always practical. Challenges arise, especially when school administrations pre-determine classroom assignments, making it complex to randomly assign students to experimental and control groups (Özmen, 2019). In such instances, a possible approach involves random assignment within pre-existing groups to designate them as either experimental or control groups (Özmen, 2019).

The study adopted a quasi-experimental model, a quantitative research method, to explore the impacts stemming from the integration of innovative teaching materials within social studies on students' map literacy skills, academic achievements, and the sustained retention of acquired knowledge. Employing a pretest/posttest model with an unequal control group, a form of quasi-experimental design, was necessitated by challenges in randomly assigning participants to the experimental and control groups.

Under this design, both the experimental and control groups undergo a pre-test assessment. Subsequently, the experimental group undergoes the specified intervention, whereas the control group does not receive any specific intervention (Özmen, 2019). The schematic outline of the study design is depicted as follows:

Group	Pre-test	Treatment	Post-test	Retention
Experimental	O_1	X	O_2	O_3
Control	O_1		O_2	O_3

Figure 1. Schematic study design to show quasi-experimental method

Note: The "X" represents the treatment or exposure to the treatment. The "O" indicates observation of the independent group/measurement.

Study Group

Simple random sampling, one of the types of random sampling, was used to determine the study group of the research. The employment of a simple random sampling method serves as a means to select the research study's participant group. Ensuring equal opportunity for any subject, object, participant, or stakeholder to be included in the sample is a critical aspect of research. (Korkmaz, 2020). In general, experimental and control groups with 30–40 subjects are accepted in experimental designs (Gürbüz & Şahin, 2018). The research cohort was composed of 52 6th-grade students attending two public secondary schools located in the Bor district of Niğde province, Türkiye. This group comprised 29 girls and 23 boys. Among them, the experimental group constituted 18 female and 7 male students, while the control group consisted of 11 female and 16 male students.

Research Background

The study was conducted in a specific setting and focused on 52 students (experimental group: 25 students, control group: 27 students) attending 6th grade in two public secondary schools in Bor district of Niğde province, Turkey, during the first semester of the 2021–2022 school year. The experimental and control groups were designed to determine the effectiveness of social studies instruction supported by innovative teaching methods. The experimental group that implemented an innovative educational program with simulations, animations, interactive maps, interactive videos, Google Earth, and digital games was compared with the control group that followed the current educational program.

The research inquiries revolved around assessing the impacts derived from the implementation of innovative teaching materials within social studies on students' map literacy skills, academic achievements, and the sustained retention of acquired knowledge. Throughout the duration of the study, challenges were encountered pertaining to limited access to pertinent informational resources. There were difficulties in accessing relevant resources specifically related to the Turkish language. A postgraduate thesis titled "Innovative Learning Materials in Social Studies Teaching" in the foreign literature was able to be found (Worrall, 1984). The thesis titled "Innovative Learning Materials in Social Studies Teaching" did not specifically examine the effect of innovative learning materials. The topic of this thesis is organized around 2 main themes. The first theme was the design and creation of innovative learning materials to fit a new Social Studies Curriculum, and the second was an informal field test of the first three chapters of a developing text. Under the explorations

heading, learning materials, a text was designed and written to fit a new Social Studies Curriculum that took eight years in planning and was published in 1981 in a fourth draft.

Data Collection

Data collection involved assessing academic achievement, map literacy, and long-term retention of learning. The inquiries pertaining to academic achievement and map literacy, concentrating particularly on the "People, Places, and Environments" strand within the social studies curriculum, were formulated by the researcher. The retention assessment utilized the acquisition tests-"Life on Earth-1" designed for 6th-grade students and "Life on Earth-2" tailored for 7th-grade students-drawn from the social studies curriculum, provided by the General Directorate of Assessment, Evaluation, and Examination Services under the Republic of Turkey Ministry of Education. These tests, employing objective marking methods where respondents select a single sign or letter per question, contribute to more reliable and valid measurements compared to other data collection tools. These tests allow for the examination of a wide range of subjects within a short time and provide a high degree of accuracy through the use of psychometric principles (Turgut, 1973).

The content validity ratios (CVR), reliability, item difficulty and item discrimination analysis results for the achievement test and the map reading tests are presented in Tables 1, 2, 3, and 4.

Table 1. The content validity ratio (CVR) for the academic achievement test

Item Number	A Number of Experts Who Declare an Item of Importance	Total Number of Expert	Content Validity Ratio (CVR)
Item 1	17	20	0.70
Item 2	15	20	0.50
Item 3	18	20	0.80
Item 4	18	20	0.80
Item 5	19	20	0.90
Item 6	16	20	0.60
Item 7	18	20	0.80
Item 8	16	20	0.60
Item 9	19	20	0.90
Item 10	16	20	0.60
Item 11	19	20	0.90
Item 12	17	20	0.70
Item 13	19	20	0.90
Item 14	18	20	0.80
Item 15	17	20	0.70
Item 16	17	20	0.70
Item 17	20	20	1.00
Item 18	15	20	0.50

Item 19	19	20	0.90
Item 20	17	20	0.70
Item 21	20	20	1.00
Item 22	13	20	0.30*
Item 23	16	20	0.60
Item 24	18	20	0.80
Item 25	19	20	0.90
Item 26	20	20	1.00
Item 27	18	20	0.80
Item 28	17	20	0.70
Item 29	19	20	0.90
Item 30	14	20	0.40
Item 31	19	20	0.90

Note: Significant at p<.42 alpha level.

According to Table 1, the content validity ratio of one item (Item 22) is below 0.42. The preliminary academic achievement test, which had 30 questions, was created by deleting the items that scored below the predetermined equivalent value for the pilot study. The content validity ratio (CVR) for the map literacy test is shown in Table 2

Table 2. The content validity ratio (CVR) for the map literacy test

Item No	A Number of Experts Who Declare an Item of Importance	Total Number of Experts	Content Validity Ratio (CVR)
Item 1	19	20	0.90
Item 2	20	20	1.00
Item 3	20	20	1.00
Item 4	17	20	0.70
Item 5	15	20	0.50
Item 6	17	20	0.70
Item 7	13	20	0.30
Item 8	18	20	0.80
Item 9	17	20	0.70
Item 10	17	20	0.70
Item 11	19	20	0.90
Item 12	19	20	0.90
Item 13	16	20	0.60
Item 14	19	20	0.90
Item 15	18	20	0.80
Item 16	17	20	0.70
Item 17	16	20	0.60
Item 18	17	20	0.70
Item 19	19	20	0.90
Item 20	18	20	0.80
Item 21	13	20	0.30*
Item 22	15	20	0.50
Item 23	16	20	0.60
Item 24	18	20	0.80
Item 25	18	20	0.80
Item 26	14	20	0.40*

Item 27	19	20	0.90
Item 28	19	20	0.90

Note: Significant at p<.42 alpha level.

When the content validity ratio of items in map literacy is examined, it can be said that two items (item 7 and item 28) loaded are below 0.42. Two items were excluded because they were not sufficient for the minimum value. Consequently, a total of 26 items were incorporated into the pilot study to validate and ensure the reliability of the test. The results of the pilot study on the validity and reliability of the academic achievement test are presented in Tables 3.

Table 3. Academic achievement test reliability, item difficulty and item discrimination analysis results

Items	Number of People Who Answered Correctly	Item Difficulty	Item Discrimination	Correct Responses of the Upper 27% of Group	Correct Responses of lower 27% of Group	Adjusted Biserial Correlation
Item 1	41	0.32	0.47	21(0.60)	6(0.13)	0.37
Item 2	60	0.35	0.39	19(0.54)	7(0.16)	0.28
Item 3	90	0.69	0.49	31(0.89)	18(0.40)	0.40
Item 4	57	0.44	0.65	29(0.83)	8(0.18)	0.41
Item 5	32	0.25	0.24	14(0.40)	7(0.16)	0.21
Item 6	62	0.48	0.63	30(0.86)	10(0.22)	0.40
Item 7	30	0.23	0.32	15(0.43)	5(0.11)	0.28
Item 8	80	0.62	0.65	32(0.91)	12(0.27)	0.44
Item 9	65	0.50	0.77	33(0.94)	8(0.18)	0.48
Item 10	84	0.65	0.60	31(0.89)	13(0.29)	0.45
Item 11	91	0.70	0.62	35(1.00)	17(0.38)	0.49
Item 12	74	0.57	0.64	31(0.89)	11(0.24)	0.47
Item 13	66	0.51	0.28	23(0.66)	17(0.38)	0.18
Item 14	81	0.62	0.37	30(0.86)	22(0.49)	0.16
Item 15	41	0.32	0.55	23(0.66)	5(0.11)	0.42
Item 16	44	0.34	0.44	20(0.57)	6(0.13)	0.33
Item 17	84	0.65	0.52	33(0.94)	19(0.42)	0.42
Item 18	86	0.66	0.64	34(0.97)	15(0.33)	0.47
Item 19	54	0.42	0.39	23(0.66)	12(0.27)	0.21
Item 20	82	0.63	0.53	31(0.89)	16(0.36)	0.39
The statistics of the academic achievement test which were gained from the pilot study						
Number of Items						20
Number of Students Attended						130
Lowest Score from Multiple Choice Test						1.00 (%5)
Highest Score from Multiple Choice Test						20.00(%100)
Median						10.00 (%50)

Mean	9.92 (%49.6)
Standard Deviation	4.34
Variance	18.84
Distortion	0.200
Kurtosis	-0.643
KR21	0.773
Average Difficulty Index	0.50
Average Discrimination Index	0.51
Discrimination Index Estimated by Point Double Series Correlation	0.36
Sem (KR20)	1.95

In Table 3, the average KR21 reliability value for the academic achievement test stands at 0.773, indicating a moderate level of reliability. Traditionally, a reliability coefficient surpassing 0.70 is typically regarded as satisfactory for ensuring test reliability (Terzi, 2019). Following examination, it was concluded that the academic achievement test with a difficulty index of 0.50, which falls between 0.40 and 0.59, is at the moderate level. The discrimination index of 0.51 (≥0.40) indicates the components within the academic achievement test have good discriminatory power. Comparison between students, those who score higher or lower on the test, is made possible by having a good discriminatory power in the test. The results of the pilot study on the validity and reliability of the map literacy test are presented in Tables 4.

Table 4. Map literacy test reliability, item difficulty and item discrimination analysis results

Items	Number of People Who Answered Correctly	Item Difficulty	Item Discrimination	Correct Responses of the Upper 27% of Group	Correct Responses of Lower 27% of Group	Adjusted Biserial Correlation
Item 1	41	0.39	0.44	20(0.67)	7(0.23)	0.28
Item 2	76	0.72	0.45	28(0.93)	15(0.48)	0.32
Item 3	81	0.77	0.29	27(0.90)	19(0.61)	0.31
Item 4	85	0.81	0.39	29(0.97)	18(0.58)	0.29
Item 5	70	0.67	0.51	27(0.90)	12(0.39)	0.35
Item 6	65	0.62	0.58	27(0.90)	10(0.32)	0.39
Item 7	63	0.60	0.58	27(0.90)	10(0.32)	0.40
Item 8	44	0.42	0.41	18(0.60)	6(0.19)	0.24
Item 9	65	0.62	0.58	28(0.93)	11(0.35)	0.37
Item 10	58	0.55	0.64	28(0.93)	9(0.29)	0.35
Item 11	72	0.69	0.64	29(0.97)	10(0.32)	0.44
Item 12	51	0.49	0.34	20(0.67)	10(0.32)	0.27
Item 13	43	0.41	0.47	19(0.63)	5(0.16)	0.36
Item 14	59	0.56	0.48	24(0.80)	10(0.32)	0.30
Item 15	60	0.57	0.64	26(0.87)	7(0.23)	0.40

Item 16	48	0.46	0.60	22(0.73)	4(0.13)	0.35
Item 17	47	0.45	0.64	26(0.87)	7(0.23)	0.41
Item 18	59	0.56	0.55	27(0.90)	11(0.35)	0.39
Item 19	55	0.52	0.64	25(0.83)	6(0.19)	0.37
Item 20	52	0.50	0.57	24(0.80)	7(0.23)	0.44

The statistics of the map literacy test which were gained from the pilot study

Number of Items	20
Number of Students Attended	105
Lowest Score from Multiple Choice Test	2.00(%10)
Highest Score from Multiple Choice Test	20.00(%100)
Median	12.00(%60)
Mean	11.37(%56.9)
Standard Deviation	4.30
Variance	18.52
Distortion	0.081
Kurtosis	-0.774
KR21	0.774
Average Difficulty Index	0.57
Average Discrimination Index	0.52
Discrimination Index Estimated by Point Double Series Correlation	0.35
Sem (KR20)	1.98

Table 4 displays that the map literacy test achieves a mean KR21 reliability value of 0.773, indicating a commendable level of reliability that meets the accepted standards for test reliability. In general, a KR21 coefficient value above 0.70 is considered good in terms of reliability. Terzi, 2019). Following the analysis, it was determined that Map literacy test with a difficulty index of 0.50, which falls between 0.40 and 0.59, is at the moderate level. The discrimination index of 0.51 (≥ 0.40) indicates that the items in the academic achievement test have good discriminatory power. Comparison between students, those who score higher or lower on the test, is made possible by having a good discriminatory power in the test. In this case, the mean discrimination index of the test was determined to be 0.52, which is above the threshold of 0.40 for a very good discrimination index. The test's ability to distinguish between students who have the information or abilities being measured and those who don't is referred to as the quality and accuracy of the test results.

Items with an item discrimination index of 0.30 and below were not removed from the data collection tool. Dela Peña et al. (2011) states that the items between 0.20-0.29 are 'Moderately Discriminating Items' in the range determined as discrimination index. In this context, the relevant items were not removed from the data collection tool.

The Development Process of the Academic Achievement Test and The Map Literacy Test

To ensure the reliability and validity of the academic achievement test, which consists of 31 multiple-choice questions, and the map literacy test, which consists of 28 questions, both assessments were reviewed by a panel of 20 experts. These questions related to academic achievement and map literacy are comprised of the "People, Places, and Environments" strand of social studies. The 20 experts, selected for their expertise and qualifications in relevant fields, represent a comprehensive approach to content validity. The expert panel consisted of 2 Prof., 6 Assoc. Prof., 1 Assist. Prof., 5 Social Studies Education Science Experts, 4 Social Studies Teachers, both assistant professors, and 1 Turkish Teacher for language compatibility.

Tables 2 and 3 display the content validity rates determined through the Lawshe technique for both the Academic Achievement Test and Map Literacy Test, aligning with expert evaluations.

As per the formula provided by Yurdagül (2005):

- If CVR<0: Signifies that more than half of the experts did not deem the item necessary.
- If CVR=0: Indicates that half of the experts regarded the item as necessary.
- If CVR>0: Suggests that more than half of the experts considered the item necessary.
- If CVR=1: Implies unanimous agreement among all experts whose opinions were solicited, indicating that they unanimously deemed the item necessary.

According to the formula, when taking the opinions of 20 experts, the minimum required value is calculated as 42. (Lawshe, 1975). The preliminary form for the pilot study was created by deleting the items that scored below the predetermined equivalent value. As part of the validity and reliability assessment, a pilot study was conducted in the 7th grade utilizing a preformed assessment, as suggested by experts. A 30-item multiple-choice test was administered to a sample of 130 7th-grade students to evaluate their academic achievement. Additionally, a 26-item multiple-choice test was given to a sample of 105 7th-grade students to gauge their map literacy skills. In the literature, regarding the size of the sample group to be formed for pretesting, it is seen that this number depends on the purpose and sensitivity of the researcher and is generally between 5-10 and 50-100 (Reynolds et al., 1993). In addition, it is stated that the size of the group for the data collection tool to be applied in the pilot study can vary between 30 and 50 people (Şeker & Gençdoğan, 2020).

The data collected from the pilot study were analyzed using the Test Analysis Program (TAP). The tests' reliability was determined using the Kuder-Richardson Formula 21, known as KR21. The reliability of the tests was assessed using KR21, with a coefficient greater than 0.70 generally considered reliable for multiple-choice tests (Terzi, 2019). Item difficulty, indicated by values between 0.00 and 1.00, is categorised as: 0.00 to 0.19: excessively difficult; 0.20 to 0.39: difficult; 0.40 to 0.59: moderate; 0.60 to 0.79: easy; 0.80 to 1.00: very easy (Kaplanoğlu, 2019). For item discrimination, according to Büyüköztürk et al. (2019), the coefficient varies between -1.00 and +1.00. The items in this range are as follows: ≥ 0.40: very good discriminator; 0.30 to 0.39: good discriminator; 0.20 to 0.29: suggests item correction; < 0.20: recommends item removal.Through statistical analysis, it was concluded that 10 questions (1, 2, 3, 5, 7, 8, 9, 20, 21, and 24) within the academic achievement test needed exclusion. Among these, 3 items (5, 20, and 24) scoring within the range of -1.00 to 0.00 were omitted due to their limited discriminatory ability regarding the assessed trait or behavior (Kaplanoğlu, 2019). According to Büyüköztürk et al. (2019), removing a negative value inversely discriminates individuals in terms of the measured target behavior. Therefore, items that have a negative discrimination value should be excluded. It is appropriate to exclude the two items (1 and 2) from the academic achievement test due to their discrimination value of 0.19 or lower.

Although the 3 items (3, 7, and 9) with discrimination values in the range of 0.20-0.29 should be corrected and the 1 item (8) with values in the range of 0.30-0.39 are considered quite good, they were removed from the test to ensure a relevant distribution of learning outcomes and to allow a maximum score of 100. The evaluation of item discrimination relied on computing the contrasts between the average scores of the lower 27% group and the upper 27% group (Büyüköztürk et al., 2019). The reliability level, item difficulty, and item discrimination values of the Academic Achievement Test are given in Table 4. Based on the statistical analysis, 2 items (5 and 24) were excluded from the map literacy test because their values were negative 1 item (19) was removed for the reason that its discrimination value was below 20. Although 1 item (25) of the discrimination value "should be corrected" and 2 items (4 and 8) of the discrimination value are considered "good"," they were removed from the test because of their impact on the distribution of learning outcomes. The reliability level, item difficulty, and item discrimination values of the Map Literacy Test are shown in Table 6.

Quasi-experimental Process

The same teacher oversaw both the implementation of data collection tools and the teaching process to minimize the researcher's impact on the quasi-experimental procedure. Before commencing the quasi-experiment, the classroom teacher provided information about the process to both the experimental and control groups, aiming to ensure transparency in the study.

Giving skill-based tests of academic achievement and map literacy to the teachers before teaching the topic of "People, Places, and Environments" strands is an important step in conducting a quasi-experiment. Teachers within the experimental group were briefed on the forthcoming implementation of innovative learning techniques aimed at enhancing learning outcomes. Meanwhile, affording educators in the control group the liberty to shape their teaching methods serves as a vital aspect for comparison. Obtaining yearly lesson plans is a significant practice in education to ensure a coordinated and progressive flow of lessons throughout the process of quasi-experimentation. Educators in the experimental group were probably briefed on how to integrate these innovative learning models, designed to meet specific outcomes, into their weekly lesson plans. Consistent support was offered through weekly interviews with the experimental group's teacher. Following the quasi-experiment, a retention test was given to students one month later. Both the experimental and control group instructors administered this test.

Improving the educational resources with simulation, animation, interactive maps, interactive videos, and digital games throughout the quasi-experiment process gives students the chance to comprehend difficult subjects. The researcher enhanced “Animation”, “Interactive Maps”, “Interactive Movies” and “Digital Games” while favoring the simulation-focused teaching materials in Mozaweb. The following tools were utilized to improve interactive videos, digital games, animation, and interactive maps: H5P, Wordwall, Plotagon Studio, and Padlet. These tools were utilized; their integration in the teaching process, preparation for teachers and students, accession and usage of the relevant software were uncomplicated throughout the quasi-experiment process. These tools were selected for the quasi-experiment process because of their user-friendly interfaces, which are straightforward and accessible for all participants, ease of integration into the teaching process, and simplicity of preparation for both teachers and students. The tools were selected

for the quasi-experiment process based on their straightforward and accessible interfaces, which make them easy to use for all participants.

Experimental Procedure

The final iteration developed after the pilot study was designed to be implemented in both pre-test and post-test phases. For assessing data normality in the quasi-experimental procedures, several tests Shapiro-Wilk, Skewness, and Kurtosis were employed. With the experimental group comprising 25 participants and the control group with 27, the Shapiro-Wilk test, suitable for smaller sample sizes, was utilized. To assess data normality, two tests were applied: the Kolmogorov-Smirnov (K-S) test for larger sample sizes and the Shapiro-Wilk test specifically recommended for groups with fewer than 50 participants (Büyüköztürk, 2020). Table 5 presents the data concerning the distribution's normality.

Table 5. Normal distribution results of data collection tools

Groups	Data Collection Tools	Statistics		
EXPERIMENTAL	Academic Achievement Pre-Test	**Skewness** .455	**Kurtosis** -.478	**p** .403*
	Academic Achievement Post-Test	**Skewness** -.423	**Kurtosis** -.018	**p** .248*
	Map Literacy Pre-Test	**Skewness** .041	**Kurtosis** -.164	**p** .147*
	Map Literacy Post-Test	**Skewness** -.244	**Kurtosis** -.479	**p** .442*
	Retention Test	**Skewness** .311	**Kurtosis** -.748	**p** .224*
CONTROL	Academic Achievement Pre-Test	**Skewness** .690	Kurtosis .710	**p** .209*
	Academic Achievement Post-Test	**Skewness** .158	**Kurtosis** -.465	**p** .577*
	Map Literacy Pre-Test	**Skewness** .641	**Kurtosis** .056	**p** .111*
	Map Literacy Post-Test	**Skewness** .766	**Kurtosis** .568	**p** .131*
	Retention Test	**Skewness** .317	**Kurtosis** -.608	**p** .681*

Note: Significant at p>.05 alpha level.

In Table 5, it's apparent that the data collection tools exhibit conformity to a normal distribution according to the outcomes of the Shapiro-Wilk test. A Shapiro-Wilk test yielding a p-value exceeding 0.05 suggests that, at this significance level, the scores align closely with a normal distribution (Büyüköztürk, 2020). Additionally, the Skewness and Kurtosis values, falling within the +/-1 range for these tools, indicate a typical distribution as interpreted in existing literature (Leech et al., 2015). This adherence to normality facilitated the application of parametric tests in subsequent analyses.

Furthermore, the indication of a normal distribution, as signified by the Skewness and Kurtosis values for the data collection tools, guided the choice to employ the JAMOVI statistical program. This software facilitated the examination of the academic achievement test's pre-test and post-test outcomes, the retention test, and the pre-test and post-test results of the map literacy test, encompassing both the experimental and control groups.

TAP played a pivotal role in analyzing the data gathered from the pilot study encompassing the academic achievement and map literacy tests. For the experimental group, the t-Test for dependent samples was applied to compare pretest and posttest scores for both the academic achievement and map literacy tests. Similarly, within the control group, this statistical test was used to evaluate the pre-test and post-test scores for both assessments. Additionally, the t-test for independent samples was utilized to discern differences in retention test scores between the experimental and control groups, as well as between the pre-test and post-test scores of the academic achievement and map literacy tests. Cohen's d was used to calculate the effect sizes of the post-test scores of the map literacy test, academic achievement test and retention test. In the interpretation of effect sizes, (d=0.2) is expressed as small effect, (d=0.5) as medium effect, (d≥0.8) as large effect (Cohen, 1988). Repeated measures ANOVA was used to test the differences in pre-test, post-test and retention tests. In the study, the sphericity, which is one of the assumptions of repeated measures analysis of variance, was tested with Mauchly's test, and then the results of the Greenhouse Geisser test was evaluated due to the lack of sphericity, and the analysis was concluded with the ANOVA test statistic (F) and sigma (p) value obtained. As a result of the analysis, the significance between the repetitions was examined with the Bonferrroni test, which is a post-hoc analysis and used in repeated measures analysis of variance. The results were evaluated at 95% confidence interval and $p<0.05$ significance level.

Results

The findings attained the result of statistical analysis scores that were obtained from the map literacy test based on the First Sub-Problem, "Is there a statistically significant difference between pre-test scores of the experimental and control groups in terms of map literacy?" are presented in Table 6.

Table 6. Independent samples t-test results of the pre-test scores of the experimental and control groups in the map literacy test

Test	Group	n	x̄	Sd	Df	t	p-value
Map Literacy Test Pre-Test	**Experimental**	21	27.4	9.3	46	1.92	.06
	Control	27	34.4	14.7			

The analysis outcomes presented in Table 6 indicate that there existed no statistically significant difference between the experimental and control groups regarding the map literacy test's pre-test scores ($t_{(46)}$=1.92;p=.06>.05). Thus, it seems that the map literacy skill levels of both the experimental and control groups exhibited similar performance levels before the intervention.

The statistical analysis outcomes derived from the academic achievement test scores related to the second sub-problem, "Is there a statistically significant difference between the pre-test scores of the experimental and control groups in terms of academic achievement?" are presented in Table 7.

Table 7. Independent samples t-test results of the pre-test scores of the experimental and control groups in the academic achievement test

Test	Group	n	x̄	Sd	Df	t	p-value
Academic Achievement Test Pre-Test	**Experimental**	25	31.0	14.4	50	.89	.38
	Control	27	28.1	8.2			

As per the analysis results, no statistically noteworthy variance emerged between the experimental and control groups in relation to the pre-test scores of the Academic Achievement Test ($t_{(50)}$=.89;p=.38>.05). Prior to the intervention, the knowledge levels related to this particular learning strand the proficiency levels in both the experimental and control groups were comparable; that is, this indicates that both groups had similar academic achievement levels.

The findings obtained as a result of the statistical analysis scores that were acquired from the map literacy test based on the third Sub-Problem, "Is there a statistically significant difference between pre-test and post-test scores of the experimental group in terms of map literacy?" are presented in Table 8.

Table 8. Independent samples t-test results of the pre-test and post-test scores of the experimental group in the map literacy test

Group	Map Literacy Test	n	$\bar{x}$	Sd	Df	t	p-value
Experimental	Pre-Test	21	27.4	9.3	20	6.12	**.00***
	Post- Test	21	51.9	14.6			

Note: Significant at p≤.05 alpha level

Table 8 displays that, as per the independent samples t-test outcomes, a statistically notable disparity was evident between the experimental group's pre-test and post-test in terms of Map literacy ($t_{(20)}$=6.12;p=.00≤.05). Upon comparing the arithmetic mean scores of the experimental group's post-test ($\bar{x}$=51.9) and pre-test ($\bar{x}$=27.4), a favorable difference was observed in favor of the post-test results. These findings suggest an enhancement in the map literacy skill levels of the experimental group by the conclusion of the quasi-experimental process.

The findings obtained the result of statistical analysis scores that were acquired from the map literacy test based on the fourth Sub-problem, "Is there a statistically significant difference between pre-test and post-test scores of the control group in terms of map literacy?" are presented in Table 9.

Table 9. Independent samples t-test results of the pre-test and post-test scores of the control group in the map literacy test

Group	Map Literacy Test	n	$\bar{x}$	Sd	Df	t	p-value
Control	**Pre-Test**	27	34.4	14.7	26	1.82	.08
	Post-Test	27	42.8	17.6			

Table 9 indicates, as per the independent samples t-test findings, that no statistically significant difference existed within the control group between the pre-test and post-test scores regarding map literacy ($t_{(26)}$=1.82;p=.08>.05). The teaching method conducted did not result in a substantial improvement in the map literacy skill levels of the students of control group. The findings obtained as a result of the statistical analysis scores that were acquired from the map literacy test based on the fifth Sub-Problem, "Is there a statistically significant difference between post-test scores of the Experimental and control groups in terms of map literacy?" are presented in Table 10.

Table 10. Independent samples t-test results of the post-test scores of the experimental group in the map literacy test

Test	Group	n	$\bar{x}$	Sd	Df	t	p-value	Effect Sizes
Map Literacy Test Post-Test	**Experimental**	24	53.8	15.2	49	2.37	**.02***	**.66**
	Control	27	42.8	17.6				

Note: Significant at p≤.05 alpha level

Table 10 illustrates a statistically significant disparity between the experimental and control groups in terms of map literacy for the post-test scores ($t_{(49)}$=2.37;p=.02≤.05). A comparison of the arithmetic mean post-test results revealed that the experimental group ($\bar{x}$=53.8) outperformed the control group ($\bar{x}$=42.8), signifying an advantage for the experimental group. The effect size of the difference in the post-test scores of the map literacy test was medium (Cohen's d=0.66). The implementation of innovative learning strategies within the experimental group notably influenced the enhancement of students' map literacy skills during the quasi-experimental process.

The findings attained the result of statistical analysis scores that were obtained from the academic achievement test based on the sixth Sub-Problem "Is there a statistically significant difference between the experimental group on pre-test and post-test in terms of academic achievement?" are presented in Table 11.

Table 11. Independent samples t-test results of the pre-test and post-test scores of the experimental group in the academic achievement test

Group	Academic Achievement Test	n	$\bar{x}$	Sd	Df	t	p-value
Experimental	Pre-Test	25	31.0	14.4	24	6.21	**.00***
	Post- Test	25	55.0	14.9			

Note: Significant at p≤.05 alpha level

Table 11 indicates that there was a statistically considerable difference between the experimental organization on the pre-check and post-check in terms of instructional success ($t_{(24)}$=6.21;p=.00≤.05). When the experimental institution's post-test ($\bar{x}$=55.0) and pre-take a look at ($\bar{x}$=31.0) arithmetic mean ratings have been as compared, it was determined that the distinction become in choose of the post-take a look at. The experimental institution exhibited a great development in instructional success at the conclusion of the quasi-experimental manner.

The results of the statistical analysis scores that were obtained from the academic achievement test based on the seventh Sub-problem, "Is there a statistically significant difference between the control group on the pre-test and post-test in terms of academic achievement?" are presented in Table 12.

Table 12. Independent samples t-test results of the pre-test and post-test scores of the control group in the academic achievement test

Group	Academic Achievement Test	n	$\bar{x}$	Sd	Df	t	p-value
Control	Pre-Test	25	28.1	8.2	26	3.81	**.00***
	Post- Test	25	42.2	16.5			

Note: Significant at p≤.05 alpha level

As indicated in Table 12, the outcomes of the impartial samples t-take a look at discovered a statistically significant distinction between the control organization's pre-check and submit-check ratings in terms of educational success ($t_{(26)}$=3.81;p=.00≤.05). Furthermore, while evaluating the arithmetic method of the submit-check ($\bar{x}$=42.2) and pre-test ($\bar{x}$=28.1) rankings for the manage institution, the distinction favored the put up-take a look at. In this context, it is arguable that the innovative pedagogical strategies employed within the experimental cohort during the quasi-experimental procedure effectively facilitated retention.

The results of the statistical analysis scores that were obtained from the academic achievement test based on the seventh Sub-problem, "Is there a statistically significant difference between the control group on the pre-test and post-test in terms of academic achievement?" are presented in Table 13.

Table 13. Independent samples t-test results of the post-test scores of the experimental and control groups, in the academic achievement test

Test	Group	n	x̄	Sd	Df	t	p-value	Effect Sizes
Academic Achievement Test Post-Test	**Experimental**	25	55.0	16.5	50	2.93	**.01***	**.81**
	Control	27	42.2	14.9				

Note: Significant at p≤.05 alpha level

According to the findings provided in Table 13, the consequences of the independent samples t-test highlighted a sizeable distinction between the experimental institution and the manipulate institution in terms of educational achievement at the submit-take a look at ($t_{(50)}$=2.93;p=.01≤.05). When evaluating the common publish-test rankings, it has become evident that the experimental group ($\bar{x}$=55.0) outperformed the control organization ($\bar{x}$=42.2), virtually indicating a bonus for the experimental group. The effect size of the difference in the post-test scores of the academic achievement test was large (Cohen's d=0.81). Consequentially, it was seen that innovative learning implementations concluded in the experimental group had a crucial impact on improving the student's level of academic achievement.

The findings attained the result of statistical analysis scores that were obtained from the retention test based on the nineth Sub-Problem "Is there a statistically significant difference between the retention scores of the experimental and control groups?" are presented in Table 14.

Table 14. Independent samples t-test results of the retention test scores of the experimental and control groups

Test	Group	n	$\bar{x}$	Sd	Df	t	p-value	Effect Sizes
Retention Test	**Experimental**	25	14.6	3.8	45	2.23	**.03***	**.65**
	Control	22	11.9	4.5				

Note: Significant at p≤.05 alpha level

In Table 14, the results of the impartial samples t-test reveal a statistically extensive distinction among the retention rankings of the experimental organization and the manage organization ($t_{(45)}$=2.23;p=.03≤.05). Upon closer examination of the retention results, it becomes obvious that the experimental institution done a higher mathematics suggest score ($\bar{x}$=14.6) as compared to the control organization's rating ($\bar{x}$=11.9), indicating a clean benefit for the experimental institution. The effect size of the difference in the scores of the retention test was medium (Cohen's d=0.65). Thus, the progressive studying implementations inside the experimental institution had a good-sized effect on the lengthy-time period retention of studying.

Tablo 15. Results of multifactor analysis of variance for repeated measures for pre-test, post-test and retention test scores

Source	Ss	Df	Ms	Hypothesis Df	Error Df	F	p	η^2
Measurements	28377.544	1.698	16709.612	2.000	44.000	116.634	.000*	.722
Measurements*Groups	1046.764	1.698	616.368	1.000	38.000	4.302	.002*	.087
Source of Variance (Bonferroni)								
Post-Test > Pre-Test								
Post-Test> Retention								
Pre-Test> Retention								

When Table 15 was examined, it was found that there was a significant difference between pre-test, post-test and retention test scores both within groups ($F_{(1.698)}$=116.634;p=.00≤.05) and between groups ($F_{(616.368)}$=4.302;p=.02≤.05). The multiple comparison showed that the significant difference between post-test and pre-test was in favour of post-test, the significant difference between post-test and retention test was in favour of post-test, and the significant difference between pre-test and retention test was in favour of pre-test. While the obtained values have a large effect within the group (η^2=.722), they have a moderate effect between the groups (η^2=.087).

Discussion and Conclusion

The exam of the outcomes from a quasi-experimental examine investigating the effect of incorporating innovative mastering packages in social research on students' map literacy, educational success, and retention yielded the following outcomes:

The research findings suggest that there was no statistically significant difference between the pre-test map literacy and academic achievement test scores of the experimental and control groups. This lack of statistical significance implies that the two groups were equivalent in terms of their initial knowledge level. In other words, both groups started at a similar baseline. The quasi-experimental design further supports this conclusion, as it also revealed no significant difference in the pre-test scores between the two groups, emphasizing their comparable subject knowledge.

The study findings revealed a noteworthy disparity in map literacy take a look at rankings among the experimental group's pre-check and submit-take a look at outcomes. The put up-check rankings have been considerably better, indicating the superb impact of revolutionary studying applications. Conversely, no big difference become located within the control group's pre- and submit-take a look at ratings. These findings spotlight the vast contribution of an enriched social studies path, incorporating revolutionary studying practices, to the enhancement of college students' map literacy talents. Furthermore, the big distinction in put up-check rankings between the experimental and manipulate agencies in addition reinforces this perspective. Odabaşı's (2021) statement that "Web 2.0 technologies in social studies education can contribute to teaching principles such as encouraging students to think, creating examples from everyday life, animating historical events, showing geographical locations practically, and developing critical thinking skills" also supports this conclusion.

The analysis of the pre-test and post-test ratings found out a substantial distinction within the academic achievement tiers of each the experimental and manage agencies. This shows that each corporation skilled educational development, with the post-test scores surpassing the pre-take a look at scores. Notably, the coaching method employed inside the control group led to stepped forward academic achievement but had no impact at the development of map literacy competencies. To better apprehend the impact of the unbiased variable at the experimental group, it's miles crucial to evaluate the publish-take a look at rankings. Merely considering the boom in scores alone is insufficient to attract definitive

conclusions about the method's effectiveness. This is because in the experimental group the educational process continues with the independent variable, whereas in the control group the educational process continues with the normal process. It can be said that while there is progress in the experimental group, the lack of progress in the control group would be contrary to the nature of the education-teaching process. In the experimental process, the control group shows a small amount of positive change from pre-test to post-test, but the experimental group increases at a faster rate (Özen, 2020) and this situation is considered normal.

The evaluation of the submit-take a look at scores for the educational success check carried out on the students inside the experimental and manipulate businesses discovered a statistically enormous difference. The effects favored the experimental group, indicating a more extensive improvement in educational success compared to the control group. While both groups showed progress of their pre- and post-take a look at scores, the experimental group exhibited a larger boom in their submit-take a look at rankings. Numerous studies within the literature aid the belief that progressive studying environments have a superb impact on college students' deep gaining knowledge of (Biggs, 1987). In addition to this, another study states that innovative learning environments have a positive effect on students' cognitive achievement (Flogie et al., 2019: 2). The results of this study align with previous research, which has consistently shown that incorporating innovative learning practices positively impacts students' academic achievement. A review of the literature reveals that the use of technology in the classroom has been associated with improved learning outcomes and enhanced student behavior (Yusuf et al., 2019: 227), the importance of including media and tools preferred by digital natives in the process (Günüç, 2017: 5) is emphasised. The innovative learning practices used in the social studies course had a positive effect on the development of academic achievement by ensuring students' active participation in the process.

The findings from the retention take a look at performed after the only-month duration following the quasi-experimental manner discovered an extensive difference in desire of the experimental group. This suggests that the students in the experimental organization, who obtained social research teaching supported with the aid of revolutionary getting to know practices, had better stages of records retention compared to the manage institution. The use of revolutionary gaining knowledge of practices has a fantastic effect on

students' map literacy, instructional overall performance, and retention of learned records. Aküzüm (2015) also highlights the significance of using substances in social research teaching to create everlasting getting to know and improve the first-rate of schooling gadget outputs.

In line with these findings, the inclusion of innovative learning practices in educational environments in general, and in the teaching of social studies in particular, has important implications for achieving the desired goals in education. Consequently, prioritizing the cultivation of innovative minds within the educational system becomes paramount. This underscores the significance of emphasizing the innovation aspect in curriculum evaluation studies and crafting curricula centered around fostering innovation (Yavuz-Konokman et al., 2016). In addition, based on the findings of this study, several concrete classroom applications can be proposed to improve students' academic performance, map literacy skills and retention of learning. These recommendations are developed taking into account the positive impact of innovative teaching materials and methods in social studies education:

Integrating digital maps and simulations: Evidence suggests that digital tools significantly improve students' map literacy. It is therefore recommended that interactive mapping applications and geospatial simulations be integrated into the classroom. Tools such as Google Earth and digital atlases should be used to allow students to dynamically explore different geographical regions, thereby enhancing their spatial awareness and geographical reasoning skills.

Project-based collaborative learning: In line with the observed benefits of interactive teaching methods, students should engage in small-group projects that analyse the physical and human geographic characteristics of a particular region. This approach encourages critical thinking, teamwork and peer learning, ultimately improving knowledge retention and understanding.

Gamified learning activities: The study highlights the positive impact of engaging teaching methods on academic achievement. To support this, social studies lessons should incorporate digital games and interactive quizzes that reinforce key concepts. Designing classroom activities where students apply their knowledge through educational games, such as treasure hunts based on geographic coordinates, can make learning more effective.

Real-life scenario-based activities: Linking classroom learning to real-world applications improves students' understanding and long-term retention of knowledge. Encourage field trips to historical and geographical sites where students can use their map-reading skills to navigate and analyse locations, promoting experiential learning.

Student-centred interactive lesson plans: Given the study's findings that innovative teaching practices improve academic success, lesson plans should incorporate multimedia elements such as interactive videos, virtual tours and digital storytelling. These methods ensure that students remain actively engaged and can visualise complex concepts more effectively.

Regular use of retention assessments: As evidence suggests that innovative learning approaches have a positive impact on retention, regular assessments should be incorporated into the curriculum. These assessments can include reflective journals, concept maps, and open-ended discussions that encourage students to revisit and reinforce previously learned content.

By implementing these recommendations, the study underscores that educators can further enhance the effectiveness of innovative teaching practices in social studies and ensure that students achieve meaningful and lasting learning outcomes.

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Author Contribution Statement

***Mehmet ÇETİN:** Conceptualization, methodology, formal analysis, investigation, resources, writing - original draft, writing - review & editing.*

***Salih USLU:** Review, spelling and grammar review, data validation.*

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