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Enhancing Cultural Awareness through Project-Based Learning: A Study on Historical Preservation in Kazakhstan

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Abstract: The Mangistau region of Kazakhstan is rich in cultural heritage and is characterized by various toponyms reflecting its multifaceted history. In the context of the Mangistau region, incorporating the cultural and historical context into the program helps students form a deeper connection with the region and its tangible and intangible heritage. By learning historical place names and their etymological origins, students gain insights into the history and cultural development of the region. This study investigates the teaching of etymological analysis of historical toponyms of the Mangistau region through project-based teaching and its impact on student's attitudes toward history and interest in historical and cultural values. The study employed a quasi-experimental design based on quantitative research methods. According to this design, pre-test results were used to divide the groups into experimental and control groups. The participants comprised 61 students (Experimental group n=31; Control group n=30) studying in the 2nd grade of a high school in Almaty, Kazakhstan, in the 2023-2024 academic year. The experimental group was taught project-based learning activities for six weeks, while the control group was taught historical toponyms and etymological analysis of the Mangistau Region using traditional teaching methods and techniques. The Attitudes Toward Historical and Toponymy Subjects Scale and the Interest in Historical and Cultural Values Scale were used as data collection instruments. The pre-test and post-test results of the experimental and control groups were analyzed using the Independent Samples t-test

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technique. The analysis revealed that the students in the experimental group demonstrated significantly higher mean scores in the post-test compared to the control group. The findings indicated that teaching with a project-based learning approach on historical toponyms and etymological analysis of the Mangistau region increased students' interest in and attitudes toward historical and cultural values.

Keywords: historical toponyms, Kazakhstan Mangistau Region, etymological analysis, project-based learning, attitudes, historical awareness

The Mangistau region of Kazakhstan is rich in cultural heritage and is characterized by various toponyms reflecting its multifaceted history. Bordered by the Caspian Sea to the west and the Kazakh Ural River to the north, it is an important link between Europe and Asia (Kenbaeva & Soylemez, 2022). Geographically, the strategic location of this region, situated on vast deserts, lush river valleys, and historically important trade routes, has made it a center for the fusion of various cultures over the centuries, including Turkish, Persian, and Russian influences (Bugybaykizi et al., 2015). This cultural fusion is reflected in the region's architecture, cuisine, and traditions and its toponyms, which offer a broad perspective on the historical and cultural development of the region.

Toponyms or place names are more than geographical landmarks; they encompass historical events, cultural narratives, and linguistic evolutions (Khazanov, 1994). Understanding the origins and meanings of these place names through etymological analysis can offer deep insights into the historical and cultural development of the region. Despite the educational value inherent in studying historical place names, they are not widely included in school programs in Kazakhstan, especially in the Mangistau Region (Nurgaliyeva & Nygymbetov, 2023).

The Mangistau Region is very advantageous in terms of its historical, geographical, and cultural potential. The region harbors rare species of Central Asia in terms of fauna and flora (Söylemez et al., 2024; Yessebiyeva, 2015). More than 4000 rock paintings dating back to the Bronze Age have been found there. It is also one of the important transit points of the historical Silk Road. In addition, in terms of Islamic history, the area contains many shrines, underground mosques, and madrasas (Koshim et al., 2023). The Mangistau Region has played a significant role in developing Kazakh culture and national consciousness in this regard. It was believed that using a project-based learning approach to teach the historical, geographical, and cultural features of the area would be beneficial because it establishes relationships between various subjects and disciplines, which facilitates learning. Indeed, the project-based learning approach is based on interdisciplinary issues and collaboration (Kokotsaki et al., 2016; MacLeod & Van der Veen, 2017).

Kazak's traditional teaching methodologies often focus on subject-centered and rote learning, which may not fully engage students or increase their academic achievement and historical awareness (DeFillippi, 2001; Nurdauletova et al., 2023). In contrast, Project-Based Learning (PBL) has emerged as an innovative pedagogical approach emphasizing active learning through real-world projects (Bilgin, Karakuyu, & Ay, 2015). PBL encourages students to explore, research, and participate in hands-on activities, leading to deeper understanding and retention of knowledge. Teaching toponyms of historical sites and etymological analysis within a PBL framework can provide an effective and lasting educational experience by increasing students' academic performance and awareness of their cultural heritage (Kubiatko & Vaculová, 2011).

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This study investigates the teaching of etymological analysis of historical toponyms of the Mangistau region through project-based learning and its impact on student's attitudes and their interest in and awareness of history. The research aims to fill the gap in the existing literature by providing empirical evidence of the effectiveness of PBL in the context of history and culture education in Kazakhstan. In addition, revealing the impact of PBL on students' learning outcomes will provide a broad perspective on integrating local history and cultural content into national programs (Kubiatko & Vaculová, 2011). Furthermore, the research emphasizes the importance of preserving and promoting regional heritage through education, developing a sense of identity and continuity among students. Research focusing on the Mangistau region will chart an important path for educators, policymakers, and academics (Bugybaykizi et al., 2015).

Historical Toponyms of the Mangistau Region and Their Etymology

Located in the southwest of Kazakhstan, the Mangistau Region attracts attention for its historical, cultural, and natural richness. This region is strategically located between Europe and Asia, with historically important trade routes as a strategic connection point (Khazanov, 1994). Over the centuries, the region has seen the interaction of different cultures, including Turkish, Persian, and Russian influences, reflected in its architecture, cuisine, and traditions, as well as its historical and cultural development reflected in its toponyms (Eginbaeva et al., 2024; Kenbaeva & Soylemez, 2022).

Historical place names are the heart of local history and identity, encompassing stories of settlement, war, and peace; the Mangistau Region has a wealth of such toponyms, each rich in meaning and historical significance (Bugybaykizi et al., 2015). These toponyms are not just geographical labels but are engraved with the footprints of history. The region's toponyms can broadly categorized as Persian, Turkish, and Russian influences, reflecting various historical dominations over the region (Korkem & Kurmanova, 2023).

Turkish influence is evident in place names such as "Kyzylorda" ("red fortress" in Turkish), which indicates the military importance of certain places. The suffix "-orda" in many Turkic place names in the region indicates a settlement or fortress, indicating the settlement patterns of nomadic Turkic tribes (Khozhiev, 2015). Persian influence, which is a remnant of the area's inclusion in the territory of historical Persia (present-day Iran), can be seen in names reflecting the river geography of the region. For example, the name "Uzen" (from Old Persian "Vazna" or "Vazarna," meaning "the place where rivers meet") is the name of a river and a city, emphasizing the importance of water resources in the historical development and settlement of the region (Akishev, 1983). However, the Russian influence, which became more pronounced in the late 19th and early 20th centuries with the expansion of the Russian Empire, is reflected in place names such as "Kulsary" (from Russian "kolonna," meaning "column"), indicating the establishment of Russian military outposts and subsequent settlements (Kenbaeva & Soylemez, 2022).

Etymology of Toponyms

Mangistau Region's toponymy and its etymology offer a deep insight into the complex fabric of the region's history, culture, and identity (Khozhiev, 2015). From Turkic nomadic settlements to Persian trading empires and Russian imperial expansion, the region's place names encompass the ebb and flow of civilizations and their legacies. They are not just geographical identifiers but living testimonies of the past, guiding us through the corridors of history and culture (Bugybaykizi et al., 2015).

1. Atyrau: The largest city in the region, Atyrau is located on the northwestern shore of the Caspian Sea. Its name is derived from the Turkic words "*ati*," meaning "grandfather," and "*rau*," meaning "ford river." Therefore, Atyrau can be interpreted as "the gateway of the *dede* river," emphasizing its historical importance as a crossing point on the Ural River (Akishev, 1983).
2. Aktau: Aktau, meaning "white mountains" in Turkish, is a toponym that can refer to both the city and the Mangyshlak Peninsula (Егинбаева et al., 2024). The name reflects the visual contrast of the peninsula's limestone cliffs against the sky as seen from the desert plains or perhaps the snow-capped peaks in ancient times, emphasizing the importance of these natural features in local topography and identity (Bugybaykizi et al., 2015).
3. Kulsary: As mentioned earlier, the etymological roots of Kulsary can be traced back to the Russian word "*kolonna*." The name was probably given by Russian settlers or military personnel who established outposts in the region, reflecting the expansion of the Russian Empire into Central Asia in the late 19th and early 20th centuries (Khozhiev, 2015). The suffix "-sari" in Turkic languages often refers to a settlement or a place where a particular feature (such as a pillar) stands out, indicating the blending of cultural influences in the naming process (Aktau City Administration, 2020).
4. Konarskoye: Konarskoye, meaning "rear fortress" in Russian, is an archaeological site located on the Caspian Sea coast near Aktau. The name suggests a military origin or purpose, possibly indicating a strategic location for defense or control of trade routes (Егинбаева et al., 2024). The presence of such Russian place names in the region underscores Russia's historical interest in securing and controlling the region's sea and trade routes (Akishev, 1983).

As Kazakhstan develops, understanding and preserving these historical place names is crucial to maintaining a connection with its rich heritage and ensuring the continuity of its diverse cultural identities (Akishev, 1983). It underlines the importance of language, history, and geography in shaping the identities of communities and the regions in which they live. Thus, Mangistau's place names are not only geographical landmarks but also narratives of history, culture, and human interaction written in the language of place and time (Aktau City Administration, 2020).

Project-Based Learning (PBL) Method

Constructivist learning asserts that learners construct knowledge through their experiences and interactions with the world. Pioneered by educational theorists such as Jean Piaget and Lev Vygotsky, constructivism emphasizes the active role of the learner in the knowledge construction process. According to this approach, learning is not a passive assimilation of knowledge but an active, dynamic process in which learners build on their previous knowledge and experiences to develop new understandings (Bilgin, Ay, & Coşkun, 2013). One method that can be used on the basis of the constructivist learning paradigm is project-based learning.

In the context of teaching historical place names and etymology, constructivist learning theory supports the idea that students can better understand and retain historical and cultural information when they are actively engaged with it (DeFillippi, 2001). By exploring the origins and meanings of place names, students connect new information to their existing knowledge of geography, history, and culture (Allal & Ducrey, 2000). This active engagement facilitates deeper learning and helps students develop critical thinking and analytical skills. Vygotsky's concept of Zone of Proximal Development (ZPD) is particularly

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important here. The ZPD represents the difference between what students can do independently and what they can achieve with guidance. Constructivist-based project-based learning (PBL) makes the most of this idea by giving students challenging tasks that are within their zone of proficiency (ZPD) (Allal & Ducrey, 2000).

Project-Based Learning (PBL) is an instructional approach that organizes learning around complex, authentic projects. In PBL, students engage in extended inquiry related to a question, problem, or challenge, resulting in a final product or presentation. This pedagogical method emphasizes student-centered learning, collaboration, and the application of knowledge in the real world (Bilgin, Karakuyu, & Ay, 2015).

The fundamental principles of PBL are based on the constructivist learning approach. By working on projects, students make their learning their own, engage in critical thinking, and use their knowledge in meaningful contexts (Kubiatko & Vaculová, 2011). PBL promotes learning in which students are not only passive recipients of information but also actively involved in the process of discovery and problem-solving. The application of PBL in teaching historical toponymy and etymological analysis allows students to explore the historical and cultural significance of place names through hands-on projects (DeFillippi, 2001). PBL is a pedagogical approach in which students gain knowledge and skills by working on a project involving real-world problems and challenges over an extended period. Unlike traditional teaching methods, which often rely on direct instruction and rote memorization, PBL emphasizes inquiry, critical thinking, and collaboration. In PBL, students participate in projects that require them to research, plan, execute, and present their findings, often resulting in a public product or presentation (Bilgin, Karakuyu, & Ay, 2015).

The principles of PBL include authenticity, continuous inquiry, student voice and choice, reflection, critique, revision, and project sharing. Authenticity refers to the relevance of projects to the real world, making the subject matter meaningful and engaging for students. Continuous inquiry involves students asking questions, conducting research, and applying their knowledge to solve problems over an extended period (DeFillippi, 2001). Student voice and choice refers to students having a say in choosing the project topic, determining the approach, and deciding how to present their findings. Reflection involves students and teachers continuously reflecting on their learning experiences, processes, and outcomes throughout the project (Bilgin, Karakuyu, & Ay, 2015). Critique and revision allow students to improve their work by providing opportunities for feedback from peers, teachers, and outside experts. Finally, open presentation of the project involves students presenting their work to an audience outside the classroom, which may include peers, parents, community members, or experts in the field (Kubiatko & Vaculová, 2011).

Advantages and Disadvantages of PBL

PBL offers many advantages in terms of the learning and teaching process. One is increased student engagement. PBL often leads to higher levels of engagement as it involves hands-on, meaningful work relevant to students' lives and interests. This approach is also based on deeper learning, as students develop a deep understanding of the subject matter through continuous questioning and problem-solving. Furthermore, PBL encourages the development of essential 21st-century skills such as critical thinking, collaboration, communication, and creativity (DeFillippi, 2001). It also emphasizes real-world application, helping students see the relevance of their learning as they apply knowledge to solve real-world problems. This relevance prepares them for future academic and career challenges (Barron et al., 2014). PBL also increases learning motivation and affective sharing due to the autonomy and ownership that students experience. Research shows that students retain knowledge better when they learn through active engagement and real-world application,

which leads to better knowledge retention (Alacapınar, 2008; DeFillippi, 2001; Kubiatko & Vaculová, 2011; Solomon, 2003).

Despite these advantages, PBL also presents several challenges. One key challenge is the preparation required by teachers. Effective PBL requires extensive planning and preparation. Teachers must design meaningful projects, facilitate inquiry, and manage classroom dynamics (Barron et al., 2014; Mardiati & Leba, 2018). Assessing student work in PBL can also be complicated because it involves assessing not only content knowledge but also skills and processes (Krajcik & Shin, 2014). In addition, PBL often requires resources such as time, materials, and access to external experts, which can be difficult to obtain. Furthermore, not all students may be ready for the autonomy and self-direction required in PBL, which requires additional support and scaffolding (Bilgin, Karakuyu, & Ay, 2015). Ensuring that PBL is aligned with curriculum standards and learning objectives can also be challenging but is necessary for accountability and assessment purposes (Krajcik & Shin, 2014).

Students build effective collaboration by researching the etymology of local place names and presenting their findings to the community through a process of creating maps and narratives (Kokotsaki et al., 2016). This process develops students' academic skills and fosters a deeper appreciation for their cultural heritage. Research has shown that PBL is effective in improving academic outcomes, increasing student engagement, and developing critical thinking skills (DeFillippi, 2001; Julian, 2017).

PBL in Teaching Social Studies

The application of PBL in social studies teaching helps students engage more deeply with the content and create meaningful connections with their cultural heritage. Another outcome of incorporating PBL into social studies and its sub-branches of history and geography education is that they develop a deeper perspective on their cultural heritage and the historical significance of their local environment. Analyzing the etymology and historical context of toponyms develops critical thinking and analytical skills. Therefore, PBL promotes interdisciplinary learning by linking language, history, geography, and culture. Interacting with local experts and community members strengthens students' ties to their communities and provides authentic learning experiences (Julian, 2017).

However, there can also be challenges and considerations. Accessing historical records, linguistic resources, and local experts requires additional effort and coordination. Providing sufficient support for students to navigate their way through complex research and project management tasks is crucial to the success of PBL (Barron et al., 2014). Allowing student voice and choice while ensuring that PBL projects are aligned with curriculum standards and learning objectives requires careful planning. PBL offers a powerful framework for teaching historical and etymological content. Educators can increase academic achievement and historical awareness by engaging students in meaningful projects that explore the rich history and linguistic heritage of the Mangistau region (Kokotsaki et al., 2016).

The Role of Cultural and Historical Context in Education

Understanding cultural and historical context is an important part of education, especially in social studies, history, and geography. Cultural and historical context provides a backdrop against which students can understand the significance of events, places, and people. It helps students see the interconnectedness of human experiences and appreciate the diversity of perspectives (Donohue, 2021; Koblanov et al., 2013; Weston, 2021).

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In the context of the Mangistau region, the inclusion and teaching of the cultural and historical context in the program will allow students to develop a deeper connection with the region and its tangible and intangible heritage. By learning historical place names and their etymological origins, students gain insight into the history and cultural development of the region (Koblanov et al., 2013; Yeginbayeva et al., 2016). This knowledge fosters a sense of identity and belonging, helping students to see themselves as part of a wider historical narrative. Moreover, teaching cultural and historical context supports the development of historical thinking skills. Students will acquire the higher-order skills of analyzing primary sources, considering multiple perspectives, and cause-and-effect relationships (Luckyj, 1991). These skills are essential for developing a deep understanding of history and becoming knowledgeable, critical thinkers.

The inclusion of cultural and historical context in education is also in line with the principles of culturally responsive teaching. This pedagogical approach builds on the importance of incorporating students' cultural references into all aspects of learning. Thus, educators can create more inclusive and engaging learning environments that respect and value students' cultural backgrounds (Meirbekov et al., 2021).

The Impacts of Teaching Historical Toponyms and Their Etymology

Impacts on Attitude and Academic Achievement

Integrating toponymy and etymological analysis into the curriculum through PBL can significantly improve students' attitudes and academic achievement. First, the process of researching historical place names requires students to engage in critical thinking and analytical skills. They must investigate the origins and meanings of place names, relate them to historical events and cultural changes, and present their findings coherently (DeFillippi, 2001). This deep engagement with the content leads to better retention and understanding of the material, as students actively construct knowledge, not just memorize facts (Julian, 2017). However, PBL supports a high level of student engagement. Projects that directly connect students with their cultural heritage and local environment are particularly engaging and make learning more relevant and motivating (Barron et al., 2014). When students see their work directly applied to the world around them, their enthusiasm for learning increases, which can lead to improved academic performance across subjects (Saparov et al., 2017).

Moreover, the interdisciplinary nature of studying historical place names and etymology can strengthen students' skills in various academic fields. This approach integrates history, geography, linguistics, and cultural studies, providing a holistic learning experience that develops students' ability to make connections between different areas of knowledge (Klein, 2005). This interdisciplinary learning can improve their attitude and overall academic performance and prepare students for more complex, integrated tasks in higher education and beyond (DeFillippi, 2001).

Within the framework of the research topic, students can select a set of historical place names in the Mangistau region, research their origins and meanings, and present their findings in a multimedia format (Suleimenova, 2023). This project could involve creating digital maps, videos, or interactive websites that show the etymology and historical context of each place's name. Another example involves students developing narratives or stories based on the history and etymology of specific place names (Barron et al., 2014). To bring these stories to life, they can write historical fiction and create documentary films or dramatic reenactments. Students can also collaborate with local historians, linguists, or community members to document and preserve the etymological history of local place names. This collaboration can

involve conducting interviews, creating oral histories, and presenting their work at community events or exhibitions (Kubiatko & Vaculová, 2011).

Impacts on Interest in and Awareness of History

Teaching historical toponymy and its etymology also plays a key role in increasing students' historical awareness. Understanding the historical and cultural context of place names helps students develop a more nuanced and informed view of their heritage and identity (Tektigul et al., 2021). This awareness is vital for fostering a sense of belonging and continuity as students learn about the historical events, cultural influences, and linguistic developments that have shaped their region. Furthermore, historical awareness developed through the study of place names and etymology encourages students to appreciate the diversity and richness of their cultural heritage (Tleuberdiev et al., 2014). It promotes a more inclusive and comprehensive understanding of history by emphasizing the contributions of various cultures and historical periods to the development of their region. This broad perspective is essential for developing empathy and respect for different cultures and historical narratives (Koblanov et al., 2013).

Moreover, historical awareness emphasizes the development of critical historical thinking skills. Students learn to analyze historical sources, evaluate different interpretations, and understand the complexity of historical events and processes (Luckyj, 1991). These skills are necessary to become informed, critical thinkers who can engage reflectively with the past and its impact on the present and future.

Related Research

Research has shown that students participating in PBL exhibit higher levels of academic achievement, better knowledge retention, positive attitude, higher motivation, and engagement in learning. Kubiatko and Vaculová (2011) found that students who participated in PBL projects showed significant gains in academic performance compared to those in traditional learning environments. The study emphasized the importance of active participation and real-world relevance in increasing students' understanding and retention of content. Bilgin, Karakuyu and Ay (2015) also found that PBL improves critical thinking, problem-solving, and collaboration skills necessary for a positive attitude, academic success, and lifelong learning. The study emphasized the role of PBL in promoting deep learning and the development of basic cognitive skills.

Research focusing specifically on social studies education has shown similarly positive results. Kokotsaki et al.'s (2016) study on the integration of cultural and historical context in education found that students who engaged with their local history and heritage through projects exhibited higher levels of historical awareness and appreciation for their cultural heritage (Woodman, 2014). Furthermore, studies on the impact of teaching historical place names have shown that students develop a more comprehensive understanding of the historical and cultural diversity of their region (Julian, 2017; Larmer & Mergendoller, 2010). In their research, Nurdauletova et al. (2023) examined the effects of teaching the works of the famous Zhyrau, who lived in the Mangistau region of Kazakhstan, to students through online and traditional teaching methods. In the six-week study conducted in the Department of Kazakh Philology in 2022, a control group pretest-posttest model was used. The findings indicate that, compared to traditional teaching methods, online-supported blended instruction increases student achievement and retention of knowledge. However, both teaching methods were found to have similar positive effects on students' attitudes and perceptions towards national values.

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In this context, the impact of teaching historical toponymy and its etymology through PBL on students' attitudes and interest in and awareness of historical and cultural values is shown by research. This approach enhances critical thinking, engagement, and interdisciplinary learning, improving academic performance and a greater appreciation of cultural heritage. By connecting students to their historical and cultural contexts, educators can encourage a more knowledgeable, engaged, and empathetic generation of students. However, studies in the literature on historical toponyms and their etymological analysis have been conducted with a one-dimensional approach based on the content of history or geography. There is no study in the literature that deals with project-based teaching of historical toponyms and etymological analysis with a holistic approach.

This current research is important in terms of revealing the relationship between historical consciousness and place as elements when a sense of belonging to a place, having a common past, uniting around the same mentality and idea, and unity of history and culture are taken into consideration. In addition, it is thought that there is no research article directly related to the subject that can fill this gap and that the theoretical framework to be developed on this subject can serve as a source for new theoretical research in the future.

The current research is important because it can contribute to the views of researchers in the fields of local history and oral history, raise awareness of historical places, and strengthen the impact of new projects by providing interdisciplinary interaction that will bridge the gap between history education and those interested in historical places. The purpose of the study is to ascertain how project-based learning, specifically the teaching of historical toponyms and etymological analysis, affects students' interest in and attitudes toward historical and cultural values. Answers to the following questions were sought:

1. To what extent does teaching historical toponyms and their etymological analysis with a project-based learning approach affect students' interest in historical and cultural values?
2. To what extent does teaching historical toponyms and their etymological analysis with a project-based learning approach affect students' attitudes towards historical toponymy?

Method

In this research, a quasi-experimental design, one of the quantitative research methods, was used. Experimental designs are those where data intended to establish cause-and-effect relationships under the control of the researcher are produced. Variables are determined as dependent and independent variables (Creswell, 2014). An experimental design involves the researcher maintaining control over all factors that might influence the outcome of the experiment. In doing so, the researcher attempts to determine or predict what may happen. An experimental design is a procedural plan that allows a researcher to test a hypothesis by drawing valid conclusions about the relationships between independent and dependent variables, providing the conceptual framework within which the experiment is conducted (Creswell, 2014).

In experimental design, groups are formed randomly, at least two or more groups or conditions are compared, at least one independent variable can be controlled, dependent variables must be measurable, results are evaluated with statistical comparisons, and external factors that could affect the experiment are controlled. Experimental design involves manipulating independent variables.

The dependent variables in this study are the attitudes toward historical and toponymy subjects and interest in and awareness of historical and cultural values. The independent variable is the project-based teaching method the researcher developed and implemented. The

independent variable has two dimensions: project-based teaching applied to the experimental group and traditional teaching methods and techniques provided in the teaching of the course for the control group.

A quasi-experimental design with a pre-test-post-test control group was used. While quasi-experimental designs are similar to experimental designs in terms of the experimental application and the procedures involved, they differ from experimental designs in that the experimental and control groups are not determined through random assignment (Maciejewski, 2020). In line with this design, participants were divided into experimental and control groups based on pre-test results. The experimental group received instructional applications through project-based learning activities over six weeks. In contrast, the control group was taught the topics "Historical Toponyms of the Mangistau Region and Their Etymological Analysis" using traditional teaching methods and techniques. This approach aimed to reveal the effectiveness of project-based teaching practices. Table 1 presents the research design.

Table 1

Design of the Study

Group	Pre-Test	Experimental Procedures (six weeks)	Post-Test
Experimental Group	-The Attitudes Toward Historical and Toponomy Subjects Scale -Interest in Historical and Cultural Values Scale	Project-based learning approach	-The Attitudes Toward Historical and Toponomy Subjects Scale -Interest in Historical and Cultural Values Scale
Control Group	-The Attitudes Toward Historical and Toponomy Subjects Scale -Interest in Historical and Cultural Values Scale	Traditional Teaching	-The Attitudes Toward Historical and Toponomy Subjects Scale -Interest in Historical and Cultural Values Scale

Experimental and Control Groups

The study group of the research comprised 61 students studying in the 2nd grade of a high school in Almaty, Kazakhstan, in the 2023-2024 academic year. The researcher assigned the sections, with Section B (n=31) designated the experimental group and Section C (n=30) as the control group. Fifteen students in the experimental group were female, and 15 were male. In the control group, 16 students were female, and 15 were male. The classes were chosen based on pre-test scores to ensure they were equivalent, and the assignment to experimental and control groups was done randomly. The equivalence of the students in the experimental and control groups was established by ensuring a balanced distribution regarding pre-test scores, previous semester report card grades, and gender. Students in both groups were assessed using the attitudes towards historical and toponymy subjects scale and an interest in historical and cultural values scale. Following this assessment, an analysis using means and t-tests was conducted to determine if there was a statistically significant difference between the experimental and control groups.

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Data Collection Instruments

This study used the Attitudes Towards Historical and Toponomy Subjects Scale and the Interest in Historical and Cultural Values Scale as data collection instruments. Information about the scales is provided below.

The Attitudes Toward Historical and Toponomy Subjects Scale

The researchers developed the Attitudes Toward Historical Toponymy Subjects Scale to measure students' attitudes. As a Likert-type scale development, it followed a five-step process. In the first stage, the theoretical and conceptual foundation of the scale was established. During this stage, the literature was reviewed, and the applicability of existing scales was examined. These scales were presented to field experts, and based on their feedback, it was decided that the existing scales did not adequately serve the study's purpose, leading to the development of a new scale. The second stage involved creating an item pool. A total of 17 items were prepared considering the literature. In the third stage, the draft scale was presented to field experts, and necessary feedback was collected. The experts reviewed the overlapping items, those serving the same purpose, and issues related to wording and meaning. As a result, five items were eliminated, reducing the draft scale to 12 items. In the fourth stage, pilot applications were conducted, and the necessary initial analyses (exploratory factor analysis) were completed. In the final stage, reliability analyses of the scale were performed.

The scale development process was generally carried out in two stages. The first stage involved creating the draft structure of the scale and conducting preliminary analyses. In the second stage, the last version of the scale was determined, and validity and reliability tests were performed. The analysis process for the scale was two-fold. First, exploratory factor analysis was conducted to create the draft scale. This included performing the KMO coefficient and Bartlett's test (Joshi et al., 2015) to determine whether the scale items demonstrated factorization and whether the sample size was adequate. The analyses revealed a KMO value above 0.80 and a significant Bartlett's test, allowing researchers to proceed with further analyses.

The total explained variance was then examined. For single-factor studies, the explained variance should be 30% or higher, while for studies with two or more factors, it should be 40% or higher (Mirahmadizadeh et al., 2018). The results showed that the single-factor structure of the scale explained 44.6% of the variance. The analyses indicated that ten items had factor loadings of 0.40 or higher, while one item with a factor loading below 0.30 was removed from the scale. In the second stage, the structure of the scale was checked, and a reliability analysis was conducted. The Cronbach's alpha reliability coefficient was found to be 0.81. It was concluded that the five-point Likert scale was valid and reliable for measuring students' attitudes toward historical toponymy subjects. The scale items are presented in Table 2.

Table 2

Items in the Attitudes Toward Historical and Toponomy Subjects Scale

Items
I like to talk about historical toponomy with my friends.
I would like to participate in organized tours on historical toponomy.
Learning about historical toponomy is a waste of time.
I know that historical toponomy is a lot of fun.
I would appreciate it if historical toponomy were reduced in the program.
I get distracted during lessons on historical toponomy.
Historical toponomy is boring.
I willingly attend classes on historical toponomy.
It is difficult for me to understand historical toponomy.
I follow historical toponomy up to date from different sources.

Note. Responses were measured on a 5-point Likert-type scale with responses ranging from 1 = xx to 5 = xxx.

The Interest in Historical and Cultural Values Scale

In the study, the interest in historical and cultural values scale that the researcher developed was used to obtain the opinions of university students. In the development phase of the data collection instrument, the literature was first reviewed. As a result of the literature review, an item pool consisting of 12 rating scale items was created. Based on the feedback from field experts two attitude items were removed because they did not adequately measure the intended characteristic, and there were similar items present. The measurement tool developed at this stage was converted into a 5-point Likert-type scale and applied to 132 university students studying in varying years of study within the scope of the pre-application. Factor analysis was used to determine the construct validity of the measurement tool, and the measurement tool's KMO value was found to be .88 after factor analysis was performed on ten scale items.

Table 3

Items in the Interest in Historical and Cultural Values Scale

Scale Items
1. I am interested in historical and cultural values.
2. I believe that visiting places with historical and cultural values contributes positively to the development of historical awareness.
3. I enjoy visiting the historical, geographical, and cultural assets of the Mangistau Region.
4. When a friend visits the Mangistau Region, I would like to introduce them to the historical and cultural values of the area.
5. I believe that the historical toponyms and cultural artifacts of the Mangistau Region should be visited and seen.
6. I participate in trips to promote the historical and cultural toponymic values of the Mangistau Region.
7. I think that the Mangistau Region has a rich heritage in terms of historical and cultural tourism values.
8. The Mangistau Region and its cultural toponyms are not worth visiting.

Note. Responses were measured on a 5-point Likert-type scale with responses ranging from 1 = xx to 5 = xxx.

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Implementation

In the experimental group, the subject of "Historical Toponyms of Mangistau Region and their Etymological Analysis" was taught with a project-based learning method for six weeks. In the control group, the same subjects were taught using traditional teaching methods and techniques for the same period. Before the application, the Attitudes Toward Historical and Toponymy Subjects Scale and the Interest in Historical and Cultural Values Scale were applied to both groups as a pre-test. Instructional activities implemented for six weeks in the experimental and control groups are as follows:

Week I: Students in the experimental group were informed, and their questions were answered. They were asked to make the necessary preliminary preparations by reading the subject of "Historical Toponyms of Mangistau Region and their Etymological Analysis." They were given questions to answer about the subject. How can we connect the subject with history? How can we establish the connection of the subject with geography? What are the historical and toponymic features of the Mangistau Region? What problem statements can you create related to the topic?

Students were instructed to prepare by answering these questions. In order to prevent the students in the experimental group from deviating from the topics and going into too much detail in the research, the topics in the "Historical Toponyms of Mangistau Region" unit covered three basic concepts. These were determined as "History of Mangistau Region," "Toponymical Features of Mangistau Region," and "Etymological Analysis of Mangistau Region," and students were asked to be divided into groups in the light of these topics.

Week II: Students prepared preliminary project topics by creating problem statements related to the daily lesson topic. Students formed groups by choosing their groupmates according to the subject they wanted to work on. They determined the sub-problems related to the project topics for the formed groups. They formed project groups as interest groups. The groups organized and determined which basic resources were needed for the projects. They chose the project work's focus and objective. The distribution of tasks, such as group leader, secretary, etc., among the group members was set up within the group, and information about their duties was given. The group members determined the name of the group. The names of the groups and project topics are stated. The experimental group consists of 31 students. The students formed six groups by deciding among themselves. The students' interest levels were taken into consideration while forming the groups. Additionally, an attempt was made to keep students with high and low achievement levels apart from one another to ensure a heterogeneous distribution in the groups. Male and female students were also mixed in each group.

Week III: The groups decided to prepare a variety of projects (Creating a Toponomical Map of the Mangistau Region, creating a Historical Map of the Mangistau Region, Poster Work on the Etymological Analysis of the Mangistau Region, etc.) through the documents they obtained related to their projects. The planned activities were prepared collaboratively within the group. Students started the research process by indicating the topics they decided on by their interests and wishes. Students tried to gather information on their chosen topics by searching for information from libraries and the internet.

Week IV: They tried to develop solutions related to their projects. The information found by the students was checked, and feedback, hints, and corrections were provided. In-task forms were given to each group, and they were asked to write and fill in the tasks of their choice on the forms. In addition, the groups were given a project introduction form (project name, subject, purpose, resources used, materials used, name of the institutions and organizations that helped them, etc.) and asked to provide information about their projects.

They were also asked to fill in the forms indicating the date, place, time, and topics of the weekly group meetings.

Week V: The groups were instructed to complete their projects. They were asked to prepare for the classroom presentation by supporting the projects with visual elements. The students regularly filled in the forms given to them each week, informed their friends and teachers about their work, and discussed the missing parts of their work and what needed to be done in the classroom environment.

Week VI: The developed projects were presented as a report. Each group was asked to make a presentation within 30 minutes. A discussion environment was created by asking questions at the end of the presentation. During and at the end of the presentation, the groups were asked interrogative questions (why, why, how) and asked to give examples. The questions were answered during the rest of the lesson. Then, the teacher created a discussion environment, and the topics were discussed. After the presentation, the students in the class expressed their positive and negative opinions. After the presentation to the whole class, students were asked to evaluate the forms distributed. At the last stage of the lesson, the assessment test prepared by the teacher on "Historical Toponyms of Mangistau Region and Their Etymological Analysis" was applied to all students for the unit review.

In the control group, during the six weeks, the course teacher followed only the course and student workbooks as a source on "Historical Toponyms of the Mangistau Region and Their Etymological Analysis" and gave lectures in the classroom. The applications lasted for six weeks simultaneously with the experimental group. The teacher used lecture and question-answer methods as learning techniques. The teacher continued to teach the students in the control group without changing the lecture system based on the current curriculum. At the end of the six weeks, the Attitudes Toward Historical and Toponomy Subjects scale and the Interest in Historical and Cultural Values scale were applied to both groups as post-tests.

Data Analysis

The data were analyzed using the SPSS 26.0 program. The significance level was accepted as .05. The test for normality of the scale used in the research was performed. For normality distribution, according to Jaramillo et al. (2023), the Kolmogorov-Smirnov test is applied if the number of people in the sample is over 50. In this context, the Kolmogorov-Smirnov Z value for the Attitudes Toward Historical and Toponomy Subjects Scales scores 0.099 and p =.200, and the Kolmogorov-Smirnov Z value for the The Interest in Historical and Cultural Values Scale scores were 0.103 and p =.174.

Skewness and kurtosis coefficients were also analyzed to test the normality of the research data. Given that both the skewness and kurtosis coefficients are within ±1, it can be argued that the distribution of the data is close to normal (Tabachnick & Fidell, 2007). The coefficients calculated for ($-0.29 \leq$ skewness ≤ 0.02; and $0.47 \leq$ kurtosis ≤ 0.81) give the scale confirmed that the data were distributed close to normal. Therefore, the independent samples t-test was used to analyze the data. Within the scope of the study, effect sizes were calculated in all comparison tests for post-tests, and the effect values of statistically significant test results are presented in the table. According to the effect size (eta squared) values that show how effective the independent variable is on the dependent variable, $0.6 \leq <$ Eta squared is interpreted as "low effect," $0.14 \leq <$ Eta squared is interpreted as "medium effect," and Eta squared ≥ 0.14 is interpreted as "large effect" (Cohen, 1992).

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Results

Table 4 shows the difference in the pre-test scores of the Attitudes Toward Historical and Toponomy Subjects Scale between the experimental group, which used project-based learning, and the control group, which used traditional teaching methods and techniques.

Table 4
T-Test Results for the Pre-test Scores on the Attitudes Toward Historical and Toponymy Scale Subjects in the Experimental and Control Groups

Pre-test	Group	N	Mean	Std. Dev.	-t-	-p-
Attitude	Control	31	3.33	0.60	-1.112	0.271
	Experimental	30	3.49	0.58		

As seen in Table 4, the average of the experimental group was 3.33, and the average of the control group was 3.49 in terms of the pre-test of the scale of attitude toward historical and toponomy subjects. As it can be understood from the results of the t-test, there was no significant difference ($p>.05$). The difference between the pre-test scores in the scale of interest in historical and cultural values between the experimental group where project-based learning was applied and the control group where traditional teaching methods and techniques were used is shown in Table 5.

Table 5
T-test Results for the Pre-test Scores on the Interest in Historical and Cultural Values Scale in the Experimental and Control Groups

Pre-test	Group	N	Mean	Std. Dev.	-t-	-p-
Interest in Historical	Control	31	3.30	0.77	-1.467	0.148
and Cultural Values	Experimental	30	3.56	0.63		

As seen in Table 5, the pre-test mean score for the experimental group is 3.30, while the control group has a mean score of 3.56 in terms of 'interest in historical and cultural values.' The difference between the groups' interest scores is not significant ($p > .05$). The difference in the post-test scores on the Attitudes Toward Historical and Toponymy Subjects, which was administered after the experimental procedures between the experimental group, where project-based learning was implemented, and the control group, which used traditional teaching methods and techniques, is shown in Table 6.

Table 6
T-test Results for the Pre-test Scores on the Attitudes Toward Historical and Toponymy Subjects Scale for the Experimental and Control Groups

Post-test	Group	N	Mean	Std. Dev.	-t-	-p-	Partial Eta Squared
Attitude	Control	31	4.03	0.34	2.987	0.004	0.13
	Experimental	30	3.61	0.72			

As seen in the table above, the mean post-test score for the experimental group on the scale of attitude towards historical and toponymy subjects is 4.03, while the control group's mean is 3.61. The difference is significant, as indicated by the t-test results ($p<0.05$). After the experimental procedures, the students in the experimental group, who were taught using project-based learning, achieved higher attitude scores compared to their peers in the control

group, who were taught using traditional teaching methods and techniques. The calculated Eta squared value indicates a medium effect for the experimental treatments. The difference in post-test scores for 'interest in historical and cultural values' between the groups is shown in Table 7.

Table 7

T-Test Results for the Post-test Scores on the Interest in Historical and Cultural Values Scale for Experimental and Control Groups

Post-test	Group	N	Mean	Std. Dev.	-t-	-p-	Partial Eta Squared
Interest in Historical and Cultural Values	Control	31	4.13	0.46	2.699	0.010	0.11
	Experimental	30	3.69	0.79			

As seen in Table 7, the mean post-test score for the experimental group on interest in historical and cultural values was 4.13, while the control group's mean was 3.69. This difference is significant, as indicated by the t-test results ($p<0.05$). After the experimental procedures, students in the experimental group, who were taught using project-based learning, showed higher interest scores in historical and cultural values than their peers in the control group, who were taught using traditional teaching methods and techniques. The calculated Eta squared value indicates a medium effect size for the experimental treatments.

Discussion and Conclusion

In this study, the effect of teaching historical toponyms and etymological analysis with a project-based learning approach on students' interest in historical and cultural values was investigated. Significant effects of project-based learning and traditional teaching practices on students' affective characteristics were found through experimental applications conducted for six weeks. The first finding of the study was that project-based learning activities in teaching the subject of historical toponyms and their etymological analysis revealed a significant difference in students' "positive attitudes toward historical and toponymy subjects" compared to traditional teaching. Students' interests and attitudes towards the activities, the lesson, and the subject improved positively with project-based learning practices. This finding can be attributed to the fact that the project-based learning method includes various activities that involve students in the process, considers students' interests and needs, includes process-based assessment, and reduces students' exam anxiety. Students may have developed positive attitudes towards the subject of historical toponyms and their etymological analysis because they were taught these features. The findings of the literature review support the findings of related studies (Al-Khayat & Elbarbari, 2023; DiEnno & Hilton, 2005; Kortam et al., 2020). Bradford (2005) tried to determine the effect of the current method on students' attitudes and motivation. The findings of his study indicated that the method positively affected students' attitudes and motivation during the course and increased their willingness to study.

The reasons students' attitudes towards history, geography, and social studies are negative are discussed, and the factors that cause this are explained based on theoretical and empirical findings. McGowan et al. (1990) stated that the reason for students' negative attitudes toward social studies are not the content of the lessons but the way the lessons are taught with traditional methods. Downey (1991) reached similar findings, claiming that social studies was not a popular course in the eyes of students in part because the teaching strategies and resources employed in these classes either failed to grab students' interest or decreased it.

Similarly, findings support the idea that students' negative attitudes toward social studies are mostly due to teaching methods (Chiodo & Byford, 2004). Tucker and Izadpanahi

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(2017) found that the environmental attitudes of middle school students who participated in project-based practices had more pro-environmental attitudes and interest in lessons than those of children attending traditional schools. Teaching courses such as history, geography, and social studies in the light of constructivist approaches, such as learning-by-doing and projects, beyond traditional methods, will contribute to students gaining meaningful experiences within the scope of historical places and cultural processes and will develop positive attitudes in them (Horton, 2000). Furthermore, Percoco (2000) stated that the abstract topics previously taught become real in the minds of students using project-based historical toponyms, which motivates them.

Another quantitative result of the research is that significant differences were found in favor of the experimental group in the scale of interest in historical and cultural values. Project-based activities implemented in the experimental group proved to be more effective than those carried out in the control group. In addition, studies by Akharraz (2021), Kean and Kwe (2014), Penuel and Means (2000), Segers and Dochy (2010), and Yazdanpanah (2019) support the findings of this study.

Cognitive and affective factors have a significant role in the formation of historical and cultural values. Students in the experimental group examined content and activities such as researching, questioning, working together, and, most importantly, internalizing through project-based practices, like "History of Mangistau Region," "Toponomical Features of Mangistau Region," "Etymological Analysis of Mangistau Region," "Creating a Toponomy Map of the Mangistau Region," and "Creating a History Map of Mangistau Region."

Within the scope of project-based learning, all these activities were carried out by the students with a student-centered approach. According to Segers and Dochy (2010), with the project-based learning approach, students' awareness of values increases to higher levels. Through projects, students have more opportunities to learn the truths and accuracies of the past in historical environments than in traditional history lessons in classrooms (Horton, 2000). Examining historical sites from multiple perspectives in the context of project-based learning increases students' interest in history and makes them curious about learning about different cultures. In this way, they can make connections between their own culture and different cultures (Boland, 1994). Therefore, project-based learning contributes to realizing important affective characteristics by developing a sense of curiosity in students and motivating teachers and students about history.

Conclusion and Recommendations

The present study tried to determine the effects of using the project-based learning method on 'historical toponyms and their etymological analysis' at the affective level. The findings showed that the method contributed positively to students' attitudes towards the subject and increased their interest in historical and cultural values. The effect of this method can be tested with long-term experiments in other subjects. The project-based learning approach, which offers great advantages over traditional educational practices in terms of creating an effective understanding of historical and geographical toponyms, should be included more in the curriculum.

One important limitation of this study is that the project-based learning practices were carried out briefly due to time constraints. The students said that the subject of historical toponyms and etymological analysis had very little place in the curriculum. For this reason, the students noted a lack of time for the project-based experimental practices carried out in six weeks.

Furthermore, the researchers found insufficient time for project-based learning applications and that some student groups had problems completing their work in the

experimental applications. Thus, more time and effective planning should be made for this approach. Mixed-methods research should be conducted on the same topic using observations, interviews, and other qualitative research techniques.

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