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Research title: The Influence of Concept-Based Teaching on High School Students' Research Skills

Abstract

This article presents the findings of an action research study conducted at Nazarbayev Intellectual School in Pavlodar, focusing on the influence of concept-based teaching on the development of high school students' research skills. The relevance of the study is determined by the growing demand for learners to demonstrate critical thinking, information literacy, and the ability to investigate complex global issues, while school curricula remain overloaded with factual content. The study employed qualitative research methods, including semi-structured interviews, classroom observations, and analysis of students' learning products. Participants included Grade 11 students and teachers of the Global Perspectives course. The findings indicate that concept-based teaching supports deeper understanding of subject content, improves students' ability to search for, evaluate, and synthesize credible sources, and enhances higher-order thinking skills. Students reported that working with key concepts helped them to structure research, explore issues from multiple perspectives, and distinguish between factual information and broader ideas. The practical significance of the study lies in its potential application for improving teaching practices in subjects that emphasize inquiry, project-based learning, and interdisciplinary connections.

Relevance and Problem Justification

Contemporary education places increasing emphasis on the development of students' research skills, critical thinking, and ability to address complex global challenges. Nazarbayev Intellectual Schools aim to equip learners with competencies necessary for academic success and lifelong learning, including inquiry-based learning, problem-solving, and effective use of information. However, due to limited instructional time and content-

heavy curricula, students often struggle to move beyond memorization toward meaningful understanding and independent research. Concept-based teaching offers a potential solution to this challenge by organizing learning around key ideas and transferable concepts rather than isolated facts. While existing research demonstrates the effectiveness of concept-based instruction in enhancing understanding and metacognition, its specific impact on the development of research skills remains underexplored. This gap highlights the need for focused investigation within the context of Global Perspectives education.

Aim and Research Questions

The aim of this study is to examine how concept-based teaching influences the development of research skills among high school students.

The study addresses the following research questions:

1. How does concept-based teaching influence the research skills of Grade 11 students?
2. How do students perceive the impact of concept-based teaching on their learning and academic performance?

Theoretical Framework

The study is grounded on the principles of concept-based teaching, which emphasize learning through key ideas that allow students to see patterns, relationships, and the "big picture" across topics and disciplines (Erickson, 2002; Erickson, 2006). According to Erickson (2008), concept-based instruction deepens students' understanding of knowledge and supports the development of critical and reflective thinking. Placing learning within a broader conceptual context enables students to move beyond surface-level memorization and engage with content at higher cognitive levels.

Concept-based learning is closely aligned with higher-order thinking skills described in Bloom's revised taxonomy, including analysis, synthesis, and evaluation (Anderson &

Krathwohl, 2001). Higher-order thinking involves transforming information through generalization, explanation, and interpretation, which are essential components of effective research practice. Rusman (2010) also emphasizes that studying concepts requires exploration of content, allowing learners to investigate relationships between facts and ideas and thus facilitating research-based learning.

Furthermore, conceptual frameworks help learners integrate knowledge across disciplines and contexts. Brady (2004, 2008) argues that modern education often presents information in fragmented forms, and conceptual learning supports students in organizing and integrating knowledge to understand complex realities. Research by McCoy and Ketterlin-Geller (2004) demonstrates that concept-based instruction improves students' performance by helping them organize factual knowledge around key ideas and examine topics from multiple perspectives.

Methodology

This qualitative study was conducted as an action research project. The participants included Grade 11 students and two Global Perspectives teachers at Nazarbayev Intellectual School in Pavlodar. A purposeful sampling strategy with maximum variation was used to select participants.Data collection methods included semi-structured interviews with students and teachers, classroom observations, and analysis of students' research tasks and projects. Data analysis followed several stages: preliminary review, coding, and development of themes and categories. (Creswell 2014, 114)

Ethical considerations were fully observed, including informed consent, voluntary participation, and confidentiality.

Implementation

The research followed several action research cycles consisting of planning, action, observation, and reflection.

During the planning stage, the problem of limited research skill development within traditional instruction was identified. Lessons were redesigned using a concept-based approach, focusing on key concepts such as change, process, diversity, and conflict.

At the action stage, these concepts were integrated into Global Perspectives lessons. Students investigated global issues, including migration, trilingual education, and genetically modified organisms, through multiple conceptual lenses. Learning activities included the use of graphic organizers, concept maps, source analysis, and inquiry-based discussions.

The observation stage involved monitoring student engagement, quality of research sources, and depth of analysis. During reflection, interim findings were analyzed and used to refine instructional strategies and subsequent lesson cycles.

Results and Key Findings

The findings indicate that the majority of students (65 out of 70) demonstrated significant improvement in research skills. Notable developments were observed in students' ability to:

- formulate research questions;
- locate and evaluate credible sources;
- analyze issues from multiple perspectives;
- synthesize and generalize information.

Following Erickson (2008, 8), students explored and understood global issues deeper; moreover, considering topics in a bigger context, helped students to structure their learning and knowledge. The findings showed that conceptual learning helped students to link different subjects as they were able to integrate topics and problems. Students reported that one of the most effective ways to develop their research skills was to explore concepts and topics through as many different contexts as it is relevant, for example, seven lenses. One participant said that global issues they discuss were challenging and it was difficult for them

to research them. However, using different concepts/ themes helped the students to find out alternative perspectives, explore the topic deeply and develop their research skills.

Practical Recommendations

Based on the findings, the following recommendations are proposed:

1) integrate concept-based planning into subjects that emphasize research and inquiry;
2) use graphic organizers and concept maps to support research skill development;
3) promote interdisciplinary learning through shared concepts across subjects;
4) provide professional development for teachers on concept-based instruction.

This study will contribute to the literature and discussions on the effectiveness of conceptual teaching/learning in the classroom. Finally, this study will be beneficial for stakeholders involved in education sector like teachers and school leaders as they could further reflect on their experience and may lead to other research results obtained in the course of the study. The findings can be used in the everyday practice of high school teachers in order to improve their professionalism, as well as in the training of teachers.

Conclusion

The study confirms that concept-based teaching positively influences the development of research skills among high school students. By focusing on key concepts, students achieve deeper understanding, enhanced critical thinking, and improved research competence. The findings contribute to the growing body of research on concept-based learning and offer practical value for teachers and school leaders seeking to strengthen inquiry-based teaching practices.

References

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Appendix

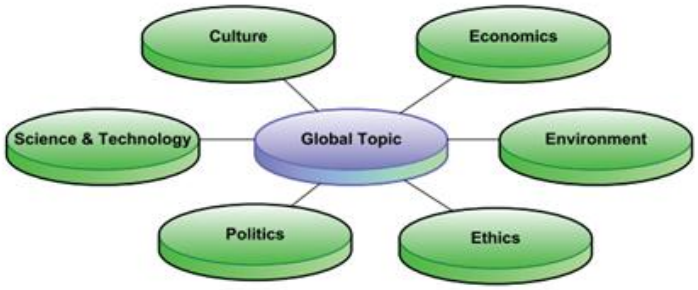

Figure 1. The seven themes/concepts (Global Perspectives and Project Work Teachers Guide 2017)

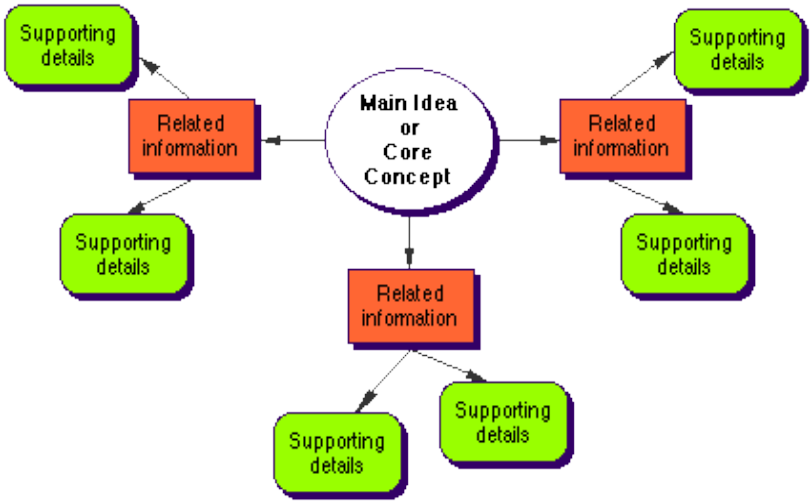

Figure 2. Graphic Organizer (Merkley & Jefferies 2001, 355)