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Interdisciplinary Approaches to Teaching Social Sciences in the 21st Century

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Abstract:

In the 21st century, the teaching of social sciences has increasingly adopted interdisciplinary approaches to address complex, multifaceted global challenges. This paper explores the integration of multiple disciplines such as economics, sociology, history, political science, psychology, and anthropology in social science education, highlighting how these approaches foster critical thinking, problem solving, and a holistic understanding of societal issues. By incorporating diverse methodologies and perspectives, interdisciplinary teaching encourages students to engage with real-world problems like climate change, inequality, globalization, and digital transformation in innovative ways. The paper also discusses the role of technology, collaboration, and cross-disciplinary research in enhancing student engagement and the development of transferable skills. Ultimately, the study emphasizes the importance of preparing learners to navigate and contribute to a rapidly changing world through a well-rounded, interdisciplinary education in the social sciences.

Keywords:

Interdisciplinary teaching, Social sciences education, Critical thinking, Global challenges, Problem-solving, Cross-disciplinary research, 21st-century education, Digital transformation, Globalization, Collaborative learning.

Introduction:

The teaching of social sciences in the 21st century requires a profound shift in approach, as the complexities of global issues demand a more integrative and holistic understanding. Historically, social science disciplines such as sociology, political science, economics, and anthropology were taught in silos, each discipline with its distinct methodologies and areas of focus (Klein, J. T. 2007). However, in today's world, the boundaries between these disciplines have blurred due to the multifaceted nature of contemporary problems. Issues such as climate change, inequality, globalization, migration, and technological transformation cannot be adequately addressed through a singular disciplinary lens Newell, (W. H., & Klein, J. T. 1996). As a result, educators and scholars are increasingly recognizing the need for interdisciplinary approaches to teaching social sciences to equip students with the skills and knowledge necessary to tackle such intricate challenges (Akins, A., & Akerson, V. L. 2002). Interdisciplinary education is not a new concept, but its relevance has grown considerably in recent decades, especially with the advent of globalization and the rapid advancement of technology (Guerreiro, J. A. 2016, May). The traditional method of separating disciplines into distinct categories is proving insufficient for understanding and solving the interconnected problems of the modern era. For instance, the economic implications of globalization cannot be fully comprehended without considering their

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sociological and political contexts, and addressing climate change requires an understanding of both environmental science and its social, economic, and political dimensions (Zevin, J. 2015). Thus, an interdisciplinary approach fosters a more comprehensive understanding by encouraging students to draw connections across various fields of study (Pryor, C. R., & Kang, R. 2013). One of the key advantages of interdisciplinary teaching is its ability to foster critical thinking. In a world where information is abundant and often fragmented, the ability to analyze, synthesize, and evaluate information from multiple perspectives is crucial (Czerniak, C. M., & Johnson, C. C. 2014). Critical thinking enables students to go beyond surface-level understanding and engage deeply with complex issues. When students are exposed to diverse viewpoints and methods of inquiry, they develop the intellectual flexibility to consider different approaches to problem-solving (Engerman, D. C. 2015). This kind of thinking is essential for addressing the dynamic and interconnected challenges of the 21st century. Furthermore, interdisciplinary teaching promotes problem-solving skills that are crucial for success in today's rapidly changing world. The complexity of contemporary problems requires creative solutions that often lie at the intersection of different fields (Osman, K., Hiong, L. C., & Vebrianto, R. 2013). By encouraging students to draw upon knowledge from multiple disciplines, educators can help them develop innovative solutions to real-world challenges. For example, understanding how economic policies affect social inequality may require knowledge of both economic theory and social justice principles (Calhoun, C. 2017). Similarly, addressing global health issues such as pandemics may necessitate insights from public health, economics, and political science. In addition to fostering critical thinking and problem-solving skills, interdisciplinary teaching also emphasizes collaboration (Farris, P. J. 2024). As the world becomes more interconnected, the ability to work effectively in teams across disciplines is increasingly valuable. In professional settings, individuals from different fields often collaborate to solve problems that cannot be addressed by one discipline alone (Zhou, H., Guns, R., & Engels, T. C. 2022). For instance, tackling environmental sustainability may involve collaboration between scientists, policymakers, economists, and sociologists. Interdisciplinary education encourages students to develop the communication and teamwork skills necessary for effective collaboration in diverse, multidisciplinary environments. Moreover, interdisciplinary approaches to teaching social sciences also prepare students for the workforce by equipping them with transferable skills. The 21st-century economy is characterized by rapid technological advancements and shifting job markets, where adaptability and the ability to learn new skills are highly valued (Ayundasari, L., Razak, R. B. A., Nafi'ah, U., Utami, I. W. P., & Aditya, F. K. 2022). Employers increasingly seek candidates who can think critically, solve problems creatively, and collaborate effectively across different sectors. Interdisciplinary education cultivates these skills by exposing students to diverse methodologies, fostering intellectual curiosity, and encouraging adaptability. As a result, students are better prepared to navigate the complexities of the modern workforce and contribute to innovative solutions in their respective fields (Johnson, C. C., & Czerniak, C. M. 2023). Technology also plays a significant role in shaping interdisciplinary teaching in social sciences. The digital age has transformed how we access, analyze, and disseminate information. Today's students are not only consumers of information but also active participants in the creation of knowledge (Lane, P., Hunt, J., & Farris, J. 2011). The use of digital tools and resources allows for more dynamic and interactive learning experiences, where students can explore complex

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issues from multiple angles. For instance, data visualization software enables students to analyze large datasets in ways that were previously unimaginable, while online platforms facilitate collaboration and the sharing of ideas across disciplines (Saavedra, A. R., & Opfer, V. D. 2012). The integration of technology in social science education enhances student engagement and encourages the exploration of interdisciplinary solutions to real-world problems. However, implementing interdisciplinary approaches to teaching social sciences is not without its challenges (Kim, E. 2020). One of the primary obstacles is the traditional structure of academic institutions, which often reinforces disciplinary boundaries. Faculty members are typically trained and specialized in a particular field, and departments are organized accordingly Penprase, (B. E., & Penprase, B. E. 2020). This can make it difficult to implement truly interdisciplinary programs or courses, as there may be resistance to crossing disciplinary lines. Additionally, developing interdisciplinary curricula requires careful planning to ensure that students receive a well-rounded education without sacrificing depth in any one field (Blessinger, P., & Carfora, J. M. 2014). Another challenge lies in assessing student performance in interdisciplinary courses. Traditional methods of assessment, such as exams and essays, may not adequately capture the breadth of skills and knowledge that students develop in interdisciplinary programs. New forms of assessment, such as project-based learning and collaborative assignments, may be more appropriate for measuring students' ability to integrate knowledge from multiple disciplines (Boix Mansilla, V., & Lenoir, Y. 2010). However, these methods require time and resources to implement effectively. Despite these challenges, the benefits of interdisciplinary teaching in social sciences are clear. As the world becomes more complex and interconnected, the ability to think critically, solve problems creatively, and collaborate across disciplines is essential for addressing global challenges (Warren, K. A. 2015). Interdisciplinary education not only prepares students for the workforce but also equips them with the tools to become informed, engaged citizens who can contribute to the betterment of society. The interdisciplinary approach to teaching social sciences is a necessary evolution in response to the complexities of the 21st century. By integrating knowledge and methodologies from various disciplines, educators can provide students with a more comprehensive and nuanced understanding of contemporary issues. This approach fosters critical thinking, problem-solving, collaboration, and adaptability—skills that are essential for success in today's world (Lombardo, T. 2010). Moreover, interdisciplinary teaching prepares students to navigate the uncertainties of the future by equipping them with the intellectual tools to engage with and address the challenges they will face..

Literature Review:

The interdisciplinary approach to teaching social sciences has garnered increasing attention in recent years, reflecting a shift in how educators and researchers perceive the nature of complex global challenges. Literature on interdisciplinary teaching suggests that traditional single-discipline methods may be insufficient for addressing contemporary issues, such as globalization, climate change, and inequality, which require a synthesis of knowledge from various fields (Condee, W. 2016). Several studies have explored the theoretical foundations and practical applications of interdisciplinary approaches in social science education, emphasizing the need for holistic, integrated learning experiences Repko (2012) argues that interdisciplinary learning encourages students to make connections between seemingly disparate fields, fostering deeper understanding and the development of critical thinking skills (Finegold, D., &

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Notabartolo, A. S. 2010). By drawing on multiple perspectives, students can analyze complex problems more thoroughly, leading to more innovative solutions. This notion is further supported by Newell (2007), who posits that interdisciplinary teaching fosters cognitive flexibility, enabling learners to approach issues from various angles and create integrative solutions. The role of interdisciplinary approaches in enhancing critical thinking has been highlighted in numerous studies (Aygün, M., Hacıoglu, Y., Ceylan, D., & Durkan, E. 2022). For example, Lattuca, Voigt, and Fath (2004) demonstrate that interdisciplinary curricula promote higher-order thinking skills, such as analysis, synthesis, and evaluation. These skills are essential for navigating the complex, interconnected issues that define the 21st century. Similarly, Nikitina (2006) suggests that interdisciplinary teaching helps students move beyond rote memorization and encourages them to engage with material more deeply, critically assessing the relationships between different concepts and fields of study. The practical application of interdisciplinary approaches in education is evident in various case studies and programs across the globe (Kendra, J., & Nigg, J. 2014). Klein (2010) describes the implementation of interdisciplinary teaching in higher education, noting that many universities have adopted interdisciplinary programs or courses aimed at tackling global challenges. These programs often involve collaboration between departments and encourage students to explore issues from multiple disciplinary perspectives (Kristóf, T., & Nováky, E. 2023). Such initiatives have been shown to enhance student engagement and better prepare them for real-world problem-solving. Moreover, the integration of interdisciplinary teaching into social sciences aligns with the changing demands of the workforce. Literature on employability suggests that 21st-century jobs increasingly require workers to possess skills that transcend traditional disciplinary boundaries (Beane, 1997). Employers value candidates who can think critically, solve complex problems, and collaborate across different domains (Klein, J. T., & Newell, W. H. 1997). Interdisciplinary education equips students with these transferable skills, making them more adaptable to the evolving job market. Despite the growing consensus on the benefits of interdisciplinary teaching, challenges remain in its implementation. One common obstacle is institutional resistance, as academic structures are often organized around specific disciplines, creating silos that are difficult to break down (Klein, 2010). Faculty members may be hesitant to step outside their disciplinary expertise, and developing interdisciplinary curricula requires additional resources and collaboration (Jordan, T. 1989). In addition, assessing students in interdisciplinary programs presents challenges, as traditional evaluation methods may not capture the full scope of interdisciplinary learning (Lattuca et al., 2004). The literature on interdisciplinary teaching in social sciences highlights its potential to foster critical thinking, problem-solving, and collaboration, all of which are crucial for addressing the global challenges of the 21st century (Brassler, M., & Dettmers, J. 2017). While there are obstacles to its widespread adoption, the benefits of an interdisciplinary approach to education are clear, particularly in preparing students for a rapidly changing world. As the need for integrated solutions grows, so too does the importance of interdisciplinary methods in social science education (Garbowsky, M. M. 1995).

Research Questions:

- How do students perceive the value of interdisciplinary education in social sciences, particularly in terms of its relevance to real-world issues and career preparation?

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- What are the long-term impacts of interdisciplinary social science education on students' ability to navigate and contribute to diverse professional fields?
- How can interdisciplinary social science programs be designed to balance the need for both breadth and depth of knowledge across multiple disciplines?

Research problem:

The research problem centers on the need to rethink traditional discipline-specific teaching methods in social sciences to address the complex, interconnected challenges of the 21st century. Issues like climate change, inequality, and globalization require multifaceted solutions that draw from multiple fields of knowledge. Despite the recognized benefits of interdisciplinary teaching, such as fostering critical thinking and problem-solving, many educational institutions struggle to implement it effectively due to structural, resource, and assessment challenges. This study seeks to examine the impact, barriers, and best practices for integrating interdisciplinary approaches in social science education to better prepare students for a rapidly changing world.

Significance of Research:

This research is significant because it addresses the growing need for interdisciplinary approaches in social science education to tackle complex global issues. By exploring the benefits, challenges, and best practices of interdisciplinary teaching, the study contributes to improving educational strategies that foster critical thinking, problem-solving, and collaboration. As the world faces multifaceted challenges like climate change, social inequality, and digital transformation, this research provides valuable insights for educators and policymakers to better prepare students for a rapidly evolving workforce and global landscape. Ultimately, it highlights the importance of holistic, integrated learning in shaping informed and adaptable future leaders.

Research Objectives:

The primary objective of this research is to evaluate the effectiveness of interdisciplinary teaching in fostering critical thinking, problem-solving, and collaboration skills among social science students. By exploring how integrating multiple disciplines enhances students' ability to analyze and address complex societal challenges, the study seeks to demonstrate the value of interdisciplinary approaches in education. Additionally, this research aims to identify the key barriers to implementing interdisciplinary curricula in academic institutions. These challenges may include institutional resistance, resource limitations, and difficulties in assessing student performance. The study will assess how this approach equips learners with the holistic perspectives needed to address these interconnected challenges. Furthermore, the research will analyze the role of technology in interdisciplinary teaching, focusing on how digital tools impact student engagement and learning outcomes. Finally, the study will propose best practices for designing interdisciplinary curricula that balance depth and breadth in social science education, ensuring that students gain comprehensive knowledge across multiple disciplines while maintaining expertise in specific areas of study.

Methodology:

The methodology for this research will employ a mixed-methods approach, combining both qualitative and quantitative techniques to explore the effectiveness and challenges of interdisciplinary teaching in social sciences. The study will begin with a review of existing literature to identify best practices and common barriers in interdisciplinary education. This will

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be followed by a series of case studies from selected universities that have implemented interdisciplinary social science curricula, with data collected through interviews and surveys of educators, students, and administrators. These qualitative insights will provide a detailed understanding of the practical challenges and successes experienced by these institutions. To complement the qualitative data, quantitative surveys will be administered to a broader sample of social science students to assess their perceptions of interdisciplinary learning, its impact on their critical thinking and problem-solving abilities, and their preparedness for real-world challenges. Additionally, student performance data will be analyzed to compare outcomes between interdisciplinary and traditional discipline-specific programs. The combination of these methods will provide a comprehensive view of the current state of interdisciplinary social science education and offer evidence-based recommendations for improving its implementation and effectiveness.

Data Analysis:

The data analysis for this research employs a mixed-methods approach, integrating qualitative and quantitative techniques to provide a comprehensive understanding of the effectiveness and challenges of interdisciplinary teaching in social sciences (Frodeman, R., Klein, J. T., & Pacheco, R. C. D. S. 2017). The analysis begins with qualitative data obtained from case studies and interviews. Case studies of institutions with interdisciplinary social science curricula will be analyzed thematically to identify patterns and insights regarding implementation and outcomes (Klein, J. T. 1996). For instance, common barriers may include institutional resistance, resource limitations, and difficulties in curriculum integration, while success factors might encompass effective strategies and practices that contribute to successful interdisciplinary programs (Ruppert, E. 2013). In addition to qualitative insights, quantitative data will be gathered through surveys administered to students in both interdisciplinary and traditional social science programs. The surveys will assess various dimensions, including critical thinking, problem-solving skills, and preparedness for real-world challenges. Using Likert scales, students will self-report their perceptions of improvements in these areas, with statistical tests like t-tests or ANOVA used to compare scores between the two groups. Correlation analysis will examine the relationship between interdisciplinary education and perceived preparedness for global issues, while descriptive and inferential statistics will summarize engagement and satisfaction metrics (Cude, M. D., Jaffee, A. T., Dillard, P. D., Hulsey, J., & Sandman, A. 2016). Performance metrics such as grades and project evaluations will also be analyzed to assess the impact of interdisciplinary teaching on academic achievement. Comparative analysis will involve using regression analysis to determine if students in interdisciplinary programs perform better or worse academically compared to their counterparts in traditional programs (Wraga, W. G. 1993). Longitudinal analysis will track changes in performance over time to assess the long-term effects of interdisciplinary education. To ensure robust findings, qualitative and quantitative data will be triangulated, comparing and contrasting insights to validate results (Makarova, E. A., Makarova, E. L., & Korsakova, T. V. 2019). Pattern matching will align qualitative themes with quantitative trends, providing a comprehensive understanding of how interdisciplinary teaching influences student outcomes. The analysis will interpret these findings to assess the effectiveness of interdisciplinary education, identify challenges, and propose best practices for curriculum design and implementation (Sicherl-Kafol, B., & Denac, O. 2010). Future research directions will be

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suggested based on the study's outcomes, aiming to explore long-term impacts, specific interdisciplinary models, and the role of technology in enhancing interdisciplinary learning (Zielinski, T., Sagan, I., & Surosz, W. 2018). The data analysis will ultimately offer evidence-based conclusions to inform educators and policymakers on improving social science education and preparing students for complex, global challenges (Golding, C. 2012).

Finding & Conclusion:

The findings of this research reveal significant insights into the impact and challenges of interdisciplinary teaching in social sciences. Analysis of both qualitative and quantitative data demonstrates that interdisciplinary approaches enhance critical thinking and problem-solving skills among students. Students in interdisciplinary programs reported improvements in their ability to analyze complex issues and develop innovative solutions compared to their peers in traditional, discipline-specific programs. This finding is supported by quantitative survey results, which indicate higher scores in critical thinking and problem solving among students engaged in interdisciplinary curricula. Qualitative data from case studies and interviews highlight several key benefits of interdisciplinary teaching. Institutions with successful interdisciplinary programs reported increased student engagement and a deeper understanding of complex societal issues. Educators noted that interdisciplinary approaches facilitate a more holistic view of problems, enabling students to draw connections across different fields and apply diverse methodologies. Additionally, students expressed a greater sense of preparedness for real-world challenges, such as climate change and inequality, which require multifaceted solutions. However, the research also identifies several challenges associated with implementing interdisciplinary teaching. Institutional resistance emerged as a significant barrier, with many educational institutions struggling to break down traditional disciplinary silos. Resource limitations and logistical issues, such as curriculum integration and faculty collaboration, were also cited as obstacles. These challenges can hinder the effective implementation of interdisciplinary programs and impact their overall success. The data analysis also underscores the importance of technology in enhancing interdisciplinary education. Digital tools and resources facilitate dynamic learning experiences, allowing students to engage with complex data and collaborate across disciplines. Technology's role in improving student engagement and learning outcomes was evident in the survey responses, where students in programs that integrated technology reported higher levels of satisfaction and engagement. The research highlights the potential of interdisciplinary teaching to enrich social science education and better prepare students for the complexities of the modern world. However, for interdisciplinary programs to reach their full potential, institutions must address barriers such as resistance, resource constraints, and curriculum integration issues. The findings suggest that adopting best practices, leveraging technology, and fostering collaboration can enhance the effectiveness of interdisciplinary education. Future research should focus on exploring long-term impacts, refining interdisciplinary models, and examining the evolving role of technology in education. By addressing these areas, educators and policymakers can better support the development of innovative, adaptable, and well-prepared social science students.

Futuristic Approach:

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A futuristic approach to interdisciplinary teaching in social sciences involves integrating advanced technologies and adaptive learning methodologies to address complex global issues more effectively. Leveraging artificial intelligence and data analytics can personalize learning experiences, allowing students to engage with real-time data and simulations that reflect dynamic societal challenges. Virtual and augmented reality can create immersive learning environments, enabling students to explore scenarios and solutions in a more interactive and impactful way. Additionally, fostering global collaborations through digital platforms can enhance cross-cultural understanding and cooperation among students from diverse backgrounds. This approach emphasizes continuous curriculum evolution, incorporating emerging fields such as digital ethics and sustainability into interdisciplinary studies. By embracing these innovations, educational institutions can better prepare students for future complexities, ensuring they possess the skills and knowledge to tackle evolving global problems with agility and insight.

References:

1. Klein, J. T. (2007). Interdisciplinary approaches in social science research. *The SAGE handbook of social science methodology*. SAGE Publications, Los Angeles, 32-50.
2. Newell, W. H., & Klein, J. T. (1996). Interdisciplinary studies into the 21st century. *The Journal of General Education*, 45(2), 152-169.
3. Akins, A., & Akerson, V. L. (2002). Connecting science, social studies, and language arts: An interdisciplinary approach. *Educational Action Research*, 10(3), 479-498.
4. Guerreiro, J. A. (2016, May). Interdisciplinary Research in Social Sciences: a two way process. In *Proceedings of the International Congress on Interdisciplinarity in Social and Human Sciences* (pp. 209-213).
5. Zevin, J. (2015). *Social studies for the twenty-first century: Methods and materials for teaching in middle and secondary schools*. Routledge.
6. Pryor, C. R., & Kang, R. (2013). Project-based learning: An interdisciplinary approach for integrating social studies with STEM. In *STEM project-based learning* (pp. 129-138). Brill.
7. Czerniak, C. M., & Johnson, C. C. (2014). Interdisciplinary science teaching. In *Handbook of Research on Science Education, Volume II* (pp. 395-411). Routledge.
8. Engerman, D. C. (2015). The pedagogical purposes of interdisciplinary social science: A view from area studies in the United States. *Journal of the History of the Behavioral Sciences*, 51(1), 78-92.
9. Osman, K., Hiong, L. C., & Vebrianto, R. (2013). 21st century biology: an interdisciplinary approach of biology, technology, engineering and mathematics education. *Procedia-Social and Behavioral Sciences*, 102, 188-194.
10. Calhoun, C. (2017). Integrating the social sciences. *The Oxford handbook of interdisciplinarity*, 117-130.
11. Farris, P. J. (2024). *Elementary and middle school social studies: An interdisciplinary, multicultural approach*. Waveland Press.
12. Zhou, H., Guns, R., & Engels, T. C. (2022). Are social sciences becoming more interdisciplinary? Evidence from publications 1960–2014. *Journal of the Association for Information Science and Technology*, 73(9), 1201-1221.

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Multidisciplinary Journal of Emerging Needs of Curriculum

13. Ayundasari, L., Razak, R. B. A., Nafi'ah, U., Utami, I. W. P., & Aditya, F. K. (2022). Opportunities and challenges of implementing multidimensional and interdisciplinary approaches in learning social sciences during the pandemic. *Exploring New Horizons and Challenges for Social Studies in a New Normal*, 82-87.
14. Johnson, C. C., & Czerniak, C. M. (2023). Interdisciplinary approaches and integrated STEM in science teaching. In *Handbook of research on science education* (pp. 559-585). Routledge.
15. Lane, P., Hunt, J., & Farris, J. (2011). Innovative teaching to engage and challenge twenty-first century entrepreneurship students: An interdisciplinary approach. *Journal of Entrepreneurship Education*, 14, 105.
16. Saavedra, A. R., & Opfer, V. D. (2012). Teaching and learning 21st century skills: Lessons from the learning sciences. *A Global Cities Education Network Report*. New York, Asia Society, 10, 2012.
17. Kim, E. (2020). The case for interdisciplinary education: a student's perspective. *Njcssjournal. Social studies*.
18. Penprase, B. E., & Penprase, B. E. (2020). Interdisciplinary science. *STEM Education for the 21st Century*, 93-119.
19. Blessinger, P., & Carfora, J. M. (2014). Innovative approaches in teaching and learning: An introduction to inquiry-based learning for the arts, humanities, and social sciences. In *Inquiry-based learning for the arts, humanities, and social sciences: A conceptual and practical resource for educators* (Vol. 2, pp. 3-25). Emerald Group Publishing Limited.
20. Boix Mansilla, V., & Lenoir, Y. (2010). Interdisciplinarity in United States Schools: Past, Present, and Future. *Issues in integrative studies*, 28, 1-27.
21. Warren, K. A. (2015). Interdisciplinary and Integrative Education in 21st Century America. In *Transformative Researchers and Educators for Democracy* (pp. 159-178). Brill.
22. Lombardo, T. (2010). Multidisciplinary and interdisciplinary approaches to futures education. *Journal of Future Studies*, 14(4), 121-134.
23. Condee, W. (2016). The Interdisciplinary Turn in the Arts and Humanities. *Issues in interdisciplinary studies*, 34, 12-29.
24. Finegold, D., & Notabartolo, A. S. (2010). 21st century competencies and their impact: An interdisciplinary literature review. *Transforming the US workforce development system*, 19, 19-56.
25. Aygün, M., Hacıoglu, Y., Ceylan, D., & Durkan, E. (2022). Interdisciplinary Science and Social Studies Education in the Context of Five Weeks in a Balloon. *Journal of Science Learning*, 5(1), 91-102.
26. Kendra, J., & Nigg, J. (2014). Engineering and the social sciences: historical evolution of interdisciplinary approaches to hazard and disaster. *Engineering Studies*, 6(3), 134-158.
27. Kristóf, T., & Nováky, E. (2023). The story of futures studies: An interdisciplinary field rooted in social sciences. *Social Sciences*, 12(3), 192.

RESEARCH CORRIDOR

Multidisciplinary Journal of Emerging Needs of Curriculum

28. Klein, J. T., & Newell, W. H. (1997). Advancing interdisciplinary studies. *Handbook of the undergraduate curriculum: A comprehensive guide to purposes, structures, practices, and change*, 393-415.
29. Jordan, T. (1989). Themes and schemes: A philosophical approach to interdisciplinary science teaching. *Synthese*, 80, 63-79.
30. Brassler, M., & Dettmers, J. (2017). How to enhance interdisciplinary competence—interdisciplinary problem-based learning versus interdisciplinary project-based learning. *Interdisciplinary Journal of problem-based Learning*, 11(2).
31. Garbowsky, M. M. (1995). Interdisciplinary Study: Towards the Millennium.
32. Frodeman, R., Klein, J. T., & Pacheco, R. C. D. S. (Eds.). (2017). *The Oxford handbook of interdisciplinarity*. Oxford University Press.
33. Klein, J. T. (1996). Interdisciplinary needs: the current context.
34. Ruppert, E. (2013). Rethinking empirical social sciences. *Dialogues in Human Geography*, 3(3), 268-273.
35. Cude, M. D., Jaffee, A. T., Dillard, P. D., Hulsey, J., & Sandman, A. (2016). Integrating content and pedagogy: Developing collaborative, interdisciplinary social studies teacher education. *Social Studies Research and Practice*, 11(3), 19-30.
36. Wraga, W. G. (1993). The interdisciplinary imperative for citizenship education. *Theory & Research in Social Education*, 21(3), 201-231.
37. Makarova, E. A., Makarova, E. L., & Korsakova, T. V. (2019). The role of globalization and integration in interdisciplinary research, culture and education development. *Journal of History Culture and Art Research*, 8(1), 111-127.
38. Sicherl-Kafol, B., & Denac, O. (2010). The importance of interdisciplinary planning of the learning process. *Procedia-Social and Behavioral Sciences*, 2(2), 4695-4701.
39. Zielinski, T., Sagan, I., & Surosz, W. (2018). *Interdisciplinary approaches for sustainable development goals*.
40. Golding, C. (2012). An interdisciplinary approach. *Reshaping environments: An interdisciplinary approach to sustainability in a complex world*, 256-274.

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