



## AN INTEGRATED LEARNING APPROACH IN HIGHER EDUCATION IN INDIA

**Dr. Kishor P. Kadam**

Associate Professor, Department of Economics, SNDT College of Arts and SCB College of Commerce and Science for Women, Chuchgate Mumbai-20.

**Ms. Monali S. Nighot**

Assistant Professor, Department of Economics, SNDT College of Arts and SCB College of Commerce and Science for Women, Chuchgate Mumbai-20.

**ABSTRACT** The evolving landscape of higher education in the 21st century necessitates a transition from rigid disciplinary boundaries to more integrated and holistic learning frameworks. This chapter explores the significance of interdisciplinary and multidisciplinary approaches in enhancing student learning outcomes, fostering critical thinking, and improving employability within the context of Indian higher education. Anchored in the vision of the National Education Policy (NEP) 2020, the discussion highlights the integration of diverse fields such as Arts, Commerce, Science, Management, and Technology as a means to address complex real-world challenges. Adopting a conceptual and analytical approach, the chapter draws on secondary data and existing literature to examine both global trends and Indian practices in integrated learning. It identifies key benefits, including improved innovation, adaptability, and problem-solving abilities among learners. At the same time, it critically analyzes persistent challenges such as institutional constraints, rigid curricular structures, and inadequate faculty preparedness that hinder effective implementation. The chapter concludes by proposing strategic recommendations, including policy-level reforms, capacity building through faculty training, and the adoption of flexible and inclusive curriculum designs. These measures are essential for fostering a more integrated, responsive, and future-ready higher education system in India.

**KEYWORDS :** Interdisciplinary Education, Multidisciplinary Learning, Integrated Learning, NEP 2020, Higher Education, Skill Development

### INTRODUCTION

Higher education systems worldwide are undergoing a profound transformation, shifting toward more flexible, inclusive, and skill-oriented frameworks. Conventional discipline-specific models, which often confine learners within limited domains of knowledge, are increasingly being reconsidered in favor of interdisciplinary and multidisciplinary approaches (Jacobs, 1989; Klein, 1990). These approaches facilitate the integration of perspectives from multiple fields, enabling students to develop a more comprehensive understanding of complex and interconnected issues.

In the Indian context, the National Education Policy 2020 (NEP 2020) represents a significant policy initiative aimed at promoting such integration. It emphasizes flexibility in curriculum design, introduces multiple entry and exit options, and encourages the blending of diverse disciplines (Government of India, 2020). The policy envisions higher education institutions as multidisciplinary ecosystems where learners can combine subjects across Arts, Commerce, Science, Management, and Technology, thereby expanding both academic depth and practical relevance.

From a conceptual standpoint, interdisciplinary education involves the synthesis and integration of knowledge from different disciplines to address complex problems, whereas multidisciplinary education refers to the coexistence of multiple disciplines studied alongside one another without necessarily merging their frameworks (Repko & Szostak, 2017). Despite their differences, both approaches are essential in preparing students for the demands of a rapidly evolving global economy characterized by technological advancements and interconnected challenges.

The integration of diverse fields contributes significantly to the development of creativity, critical thinking, and innovation (Frodeman, 2017). For example, the convergence of technology and management can lead to more effective and adaptive business solutions, while the blending of arts and sciences often enhances creative thinking and innovation. Consequently, interdisciplinary and multidisciplinary learning not only enrich academic experiences but also play a crucial role in improving employability and supporting broader societal development.

### REVIEW OF LITERATURE

The increasing focus on interdisciplinary and multidisciplinary approaches in higher education reflects their growing relevance in addressing complex, real-world problems. Foundational theoretical contributions emphasize the value of integrating knowledge across disciplines to create more meaningful learning experiences. For

instance, Beane (1997) highlights that curriculum integration allows learners to relate academic content to lived experiences, thereby fostering participatory and experiential forms of learning. Similarly, Drake and Burns (2004) argue that integrated curricula contribute to holistic development by connecting subject-specific knowledge with broader competencies and learning outcomes.

Empirical studies further substantiate the effectiveness of interdisciplinary learning models. Ivanitskaya et al. (2002) demonstrate that students engaged in interdisciplinary programmes show enhanced cognitive abilities, particularly in critical thinking and problem-solving. In a related study, Lattuca, Voigt, and Fath (2004) observe that interdisciplinary exposure contributes to deeper conceptual understanding and improved academic performance. Expanding on this, Knight et al. (2012) report that well-structured interdisciplinary programmes positively influence student engagement, learning experiences, and overall academic growth.

A comprehensive synthesis by Spelt et al. (2009) reinforces these findings, indicating that interdisciplinary education not only promotes knowledge integration but also strengthens collaborative learning capabilities. The study emphasizes the importance of carefully designed curricula and strong institutional support for effective implementation. In addition, Boix Mansilla and Duraising (2007) propose a framework for assessing interdisciplinary learning, focusing on students' ability to synthesize and apply knowledge across disciplinary boundaries.

Advancements in technology have further expanded the scope and effectiveness of interdisciplinary education. Chen et al. (2009) discuss how collaborative digital platforms, such as wikis, facilitate knowledge sharing and interdisciplinary interaction among learners. Likewise, Leung et al. (2018) illustrate how immersive tools like virtual reality can create engaging, experiential learning environments that enhance interdisciplinary understanding.

Recent research has also emphasized the collaborative and applied dimensions of interdisciplinary learning. Freeth and Caniglia (2020) underline the role of co-creation and teamwork, particularly in sustainability research, where collective knowledge production is essential. Similarly, Van den Beemt et al. (2020) identify key success factors in interdisciplinary engineering education, including effective curriculum design, faculty collaboration, and institutional support mechanisms.

Quantitative studies further indicate the expanding significance of interdisciplinarity in academia. Wei et al. (2020) report a notable rise in

interdisciplinary research outputs, reflecting its increasing importance across fields. Complementing this perspective, Muukkonen and Kajamaa (2024) explore knowledge practices in interdisciplinary settings, emphasizing collaborative problem-solving and shared knowledge construction as critical components of learning.

From a cognitive standpoint, interdisciplinary education plays a vital role in developing integrative thinking skills. Nikitina (2005) explains how learners synthesize insights from different disciplines to build comprehensive understanding, while Lizier et al. (2018) argue that addressing complex systems inherently requires interdisciplinary approaches that combine diverse knowledge domains.

Despite these advantages, several challenges hinder the effective implementation of interdisciplinary education. Lindvig and Ulriksen (2019) identify issues related to curriculum design, pedagogical practices, and institutional structures. In the Indian context, Shah (2023) highlights constraints such as rigid academic frameworks, limited faculty preparedness, and resistance to change. Rao (2020) further points to the role of accreditation systems in promoting outcome-based and interdisciplinary curriculum reforms.

Policy frameworks have played a crucial role in advancing interdisciplinary education. The National Education Policy 2020 strongly advocates a multidisciplinary approach, emphasizing flexibility, skill development, and holistic learning. Supporting this view, Aithal and Aithal (2020) argue that multidisciplinary institutions are essential for achieving global academic standards and fostering innovation.

Applied research provides additional evidence of the practical benefits of interdisciplinary approaches. Reynolds and Dacre (2021) show that interdisciplinary methodologies in engineering learning enhance both technical competencies as well as problem-solving skills, and reinforcing their relevance in contemporary education systems.

In short, the literature consistently underscores the importance of interdisciplinary and multidisciplinary education in enhancing learning outcomes, fostering innovation, and improving employability. However, translating these benefits into practice requires addressing institutional barriers, redesigning curricula, and strengthening faculty capabilities. Furthermore, there is a pressing need for context-specific empirical research, particularly within Indian higher education, to better understand and optimize the implementation of interdisciplinary approaches.

The main purpose is to examine the integrated learning approach in higher education in India by analyzing the convergence of diverse disciplines such as Arts, Commerce, Science, Management, and Technology; evaluating its benefits and challenges; and suggesting policy measures for its effective implementation.

## METHODOLOGY

This study is grounded in a conceptual and analytical research design, primarily relying on secondary data sources to examine the integrated learning approach in higher education in India. The conceptual framework of the study is developed by synthesizing existing theories, models, and policy perspectives related to interdisciplinary and multidisciplinary education.

The data for the study have been collected from a wide range of secondary sources, including academic books, peer-reviewed research articles, government policy documents, institutional reports, and publications of national and international organizations. Special emphasis has been placed on key policy frameworks such as the National Education Policy 2020, which advocates the integration of disciplines and holistic education in the Indian higher education system.

The study adopts a qualitative research approach, as it focuses on understanding concepts, patterns, and perspectives rather than numerical analysis. Through qualitative content analysis, the study examines the role and significance of multidisciplinary and interdisciplinary education in transforming higher education. The approach allows for an in-depth interpretation of existing literature and helps in identifying emerging trends, opportunities, and challenges associated with integrated learning.

A systematic literature review method has been employed to ensure the

selection of relevant and credible sources. Literature from both national and international contexts has been critically reviewed to provide a comprehensive and comparative understanding of integrated learning practices. This review helps in identifying best practices, theoretical insights, and gaps in the existing body of knowledge.

Furthermore, the analytical component of the study involves critical evaluation and synthesis of the collected information to assess the benefits and challenges of integrated learning approaches. Based on this analysis, the study also proposes policy recommendations and strategic measures for the effective implementation of integrated learning in higher education in India.

Overall, the methodology is designed to provide a holistic, systematic, and in-depth understanding of the integrated learning approach, making it relevant for academic discourse as well as policy formulation.

## DISCUSSION

**5.1 Concept of Interdisciplinary and Multidisciplinary Education:** Interdisciplinary education involves integrating knowledge from different disciplines to create new insights (Repko & Szostak, 2017). Multidisciplinary education, on the other hand, involves studying multiple disciplines independently.

### 5.2 Integration across Disciplines:

The integration of Arts, Commerce, Science, Management, and Technology creates a holistic learning environment:

**Arts and Science:** Enhances creativity and innovation

**Commerce and Technology:** Improves business analytics and digital skills

**Management and Science:** Strengthens research and decision-making

**Technology and Arts:** Promotes design thinking and innovation

## BENEFITS OF INTERDISCIPLINARY EDUCATION

### 1. Enhances critical thinking and problem-solving skills

Interdisciplinary education significantly strengthens students' critical thinking and problem-solving abilities by encouraging the integration of knowledge from multiple disciplines. Rather than relying on a single perspective, learners analyze complex problems holistically and develop innovative solutions. According to Julie Thompson Klein (1990), interdisciplinary learning promotes the ability to synthesize knowledge across domains, leading to deeper understanding and effective problem-solving. Similarly, Veronica Boix Mansilla (2010) highlights that interdisciplinary thinking enables students to apply knowledge flexibly in real-world contexts, which is essential in addressing contemporary global challenges.

### 2. Promotes innovation and creativity

By integrating insights from diverse disciplines such as arts, science, and technology, interdisciplinary education fosters creativity and innovation. Exposure to varied perspectives encourages students to think beyond conventional boundaries and generate original ideas. Allen F. Repko (2012) argues that interdisciplinary approaches facilitate the creation of new knowledge by combining disciplinary insights. Additionally, Howard Gardner (2006) emphasizes that interdisciplinary learning enhances cognitive flexibility, which is crucial for innovation in a knowledge-based economy.

### 3. Improves employability

Interdisciplinary education equips students with transferable skills such as communication, adaptability, teamwork, and analytical thinking, all of which are highly valued in the labour market. Research by Association of American Colleges and Universities (2015) indicates that employers prefer graduates who can integrate knowledge across fields and apply it in practical contexts. Furthermore, David J. Skorton (2018) notes that interdisciplinary programmes enhance career readiness by bridging academic learning with professional skills and real-world applications.

### 4. Encourages collaboration and teamwork

Interdisciplinary learning environments foster collaboration by bringing together students from different academic backgrounds. This interaction develops teamwork, communication, and mutual respect

for diverse perspectives. Bruce W. Speck (2001) found that collaborative interdisciplinary learning improves group interaction and enhances the quality of knowledge exchange. Similarly, Diana Rhoten (2004) emphasizes that interdisciplinary collaboration leads to more comprehensive and innovative outcomes, as students learn to work across disciplinary boundaries.

### 5. Provides holistic education

Interdisciplinary education offers a holistic learning experience by integrating theoretical knowledge with practical applications. It enables students to understand connections between disciplines and develop a broader worldview. William H. Newell (2001) argues that interdisciplinary learning helps students recognize complexity, overcome biases, and appreciate multiple perspectives. This holistic approach aligns closely with the vision of modern policies such as National Education Policy 2020, which emphasizes comprehensive and flexible education systems.

## CHALLENGES OF INTERDISCIPLINARY EDUCATION

### 1. Lack of faculty training

A major challenge in implementing interdisciplinary education is the lack of adequately trained faculty. Most educators are trained within specific disciplines and may find it difficult to integrate knowledge across fields. Julie Thompson Klein (1990) notes that effective interdisciplinary teaching requires faculty who are skilled in collaboration and curriculum integration, which remains limited in traditional systems.

### 2. Rigid curriculum structures

Traditional higher education systems are often organized around discipline-specific curricula, limiting flexibility for interdisciplinary integration. Allen F. Repko (2012) emphasizes that interdisciplinary programmes require adaptable and flexible curricula, but many institutions struggle to move beyond rigid academic frameworks.

### 3. Institutional resistance

Institutional resistance to change is another significant barrier. Universities may hesitate to adopt interdisciplinary approaches due to administrative complexity, lack of incentives, or adherence to traditional academic norms. Diana Rhoten (2004) highlights that disciplinary silos and institutional culture often hinder interdisciplinary initiatives.

### 4. Limited resources

The implementation of interdisciplinary education requires additional resources such as funding, infrastructure, and collaborative platforms. According to the Organisation for Economic Co-operation and Development (2019), many institutions face financial and infrastructural constraints, which limit the effectiveness and sustainability of interdisciplinary programmes.

### 5. Assessment difficulties

Assessing interdisciplinary learning outcomes is complex because it involves evaluating integrated knowledge and diverse skill sets. Traditional assessment methods are often inadequate for measuring competencies such as creativity, synthesis, and collaboration. Veronica Boix Mansilla (2010) stresses the need for innovative and flexible assessment frameworks to effectively evaluate interdisciplinary learning outcomes.

## RESULTS

The study highlights that interdisciplinary education significantly enhances student learning outcomes. When learners engage with knowledge drawn from multiple disciplines, they develop a more comprehensive understanding of concepts and are better able to connect theory with practical application. This integrative approach strengthens critical thinking, analytical capacity, and problem-solving abilities, making learning more effective than traditional single-discipline methods.

Another key finding is that the integration of diverse disciplines positively influences both employability and innovation. Students participating in interdisciplinary learning environments acquire a broad range of transferable skills, including communication, adaptability, and creativity, which are highly valued in today's labour market. Moreover, exposure to multiple perspectives encourages innovative thinking, enabling students to identify connections across fields and generate original ideas.

The study also observes that multidisciplinary exposure enhances

students' adaptability. Interaction with varied academic domains equips learners with the ability to adjust to changing circumstances, work across disciplinary boundaries, and address complex real-world challenges more effectively. Such adaptability is particularly crucial in a rapidly evolving professional environment.

Despite these benefits, the findings indicate that several institutional constraints limit the effective implementation of interdisciplinary education. Challenges such as inflexible curriculum structures, insufficient faculty training, resource limitations, and resistance to change continue to act as significant barriers within higher education institutions.

Finally, the study underscores that the National Education Policy 2020 offers a progressive and supportive framework for advancing interdisciplinary and multidisciplinary education. The policy promotes flexibility, skill development, and holistic learning. However, its success largely depends on effective execution at the institutional level, which requires careful planning, capacity building, and ongoing evaluation.

## CONCLUSION

Interdisciplinary and multidisciplinary education signify a major transformation in the structure and delivery of higher education. By bringing together fields such as arts, commerce, science, management, and technology, institutions can create a more integrated and holistic learning environment. This approach goes beyond the acquisition of subject-specific knowledge by enabling students to develop practical skills, critical thinking abilities, and a wider perspective required to address complex real-world challenges.

However, the effective adoption of interdisciplinary education is not without difficulties. Its successful implementation depends on addressing key challenges, including the need for flexible curriculum frameworks, well-trained faculty, strong institutional support, and adequate resource allocation. If these constraints remain unresolved, the full potential of this approach may not be achieved.

To ensure meaningful implementation, there is a need for robust policy backing, improved infrastructure, and continuous monitoring mechanisms. Higher education institutions should focus on faculty development initiatives, promote collaborative and cross-disciplinary teaching practices, and redesign evaluation systems to reflect interdisciplinary learning outcomes.

Looking ahead, the evolution of higher education will increasingly depend on the ability to move beyond rigid disciplinary boundaries and promote integrated learning systems. In this context, the vision outlined in the National Education Policy 2020 provides a strong foundation for fostering such transformation. An integrated approach to learning will equip students with the adaptability, innovation, and holistic understanding necessary to navigate global challenges, thereby contributing to sustainable development and overall societal progress.

## REFERENCES

1. Aithal, P. S., & Aithal, S. (2020). Implementation strategies of NEP 2020. *International Journal of Management, Technology and Social Sciences*, 5(2), 283–325.
2. Beane, J. A. (1997). *Curriculum integration*. Teachers College Press.
3. Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education*, 32(3), 347–364.
4. Drake, S. M., & Burns, R. C. (2004). *Meeting standards through integrated curriculum*. ASCD.
5. Frodeman, R. (2017). *The Oxford handbook of interdisciplinarity*. Oxford University Press.
6. Government of India. (2020). *National Education Policy 2020*.
7. Holley, K. (2009). *Interdisciplinary strategies*. ASHE Higher Education Report, 35(2).
8. Jacobs, H. H. (1989). *Interdisciplinary curriculum*. ASCD.
9. Klein, J. T. (1990). *Interdisciplinarity*. Wayne State University Press.
10. Kumar, A. (2021). Multidisciplinary education in India. *Journal of Education Policy*, 12(1), 45–60.
11. Lattuca, L. R., et al. (2017). *Interdisciplinary education*. Jossey-Bass.
12. Newell, W. H. (2001). A theory of interdisciplinary studies. *Issues in Integrative Studies*, 19, 1–25.
13. Rao, N. (2020). Accreditation and quality assurance in India. *Higher Education Review*, 52(3), 65–82.
14. Repko, A. F., & Szostak, R. (2017). *Interdisciplinary research*. Sage.
15. Shah, M. (2023). Challenges in NEP implementation. *Indian Journal of Higher Education*, 8(2), 101–115.
16. Spady, W. G. (1994). *Outcome-Based Education*.
17. Harden, R. M. (2007). Outcome-based education. *Medical Teacher*, 29(7), 625–629.
18. Adam, S. (2004). *Using learning outcomes*. Bologna Seminar Report.
19. Patil, R. (2021). Skill-based education in India. *Education Today*, 15(2), 78–89.
20. Singh, P., & Sharma, R. (2022). Employability and OBE. *Journal of Education and Work*, 35(4), 456–472.
21. Patel, D., & Desai, K. (2022). Student performance under OBE. *International Journal of*

- Educational Research, 110, 101–115.
22. Association of American Colleges and Universities (AAC&U). (2015). *Falling short? College learning and career success*. AAC&U.
23. Boix Mansilla, V. (2010). Assessing expert interdisciplinary work at the frontier: An empirical exploration. *Research Evaluation*, 19(1), 17–29. <https://doi.org/10.3152/095820210X481097>
24. Gardner, H. (2006). *Five minds for the future*. Harvard Business School Press.
25. Klein, J. T. (1990). *Interdisciplinarity: History, theory, and practice*. Wayne State University Press.
26. Newell, W. H. (2001). A theory of interdisciplinary studies. *Issues in Integrative Studies*, 19, 1–25.
27. Organisation for Economic Co-operation and Development (OECD). (2019). *OECD future of education and skills 2030: OECD learning compass 2030*. OECD Publishing.
28. Repko, A. F. (2012). *Interdisciplinary research: Process and theory* (2nd ed.). SAGE Publications.
29. Rhoten, D. (2004). Interdisciplinary research: Trend or transition. *Items and Issues*, 5(1–2), 6–11.
30. Skorton, D. J., & Bear, A. (2018). The integration of the humanities and arts with sciences, engineering, and medicine in higher education: Branches from the same tree. *National Academies Press*. <https://doi.org/10.17226/24988>
31. Speck, B. W. (2001). Why service-learning? New directions for higher education. *New Directions for Higher Education*, 2001(114), 3–13. <https://doi.org/10.1002/he.11>
32. Government of India. (2020). *National Education Policy 2020*. Ministry of Education. <https://www.education.gov.in>
33. Aithal, P. S., & Aithal, S. (2020). Building world-class universities: Some insights and predictions. *International Journal of Management, Technology, and Social Sciences*, 5(2), 251–263. <https://doi.org/10.47992/IJMTS.2581.6012.0123>
34. Beane, J. A. (1997). *Curriculum integration: Designing the core of democratic education*. Teachers College Press.
35. Boix Mansilla, V., & Duraing, E. D. (2007). Targeted assessment of students' interdisciplinary work: An empirically grounded framework. *Journal of Higher Education*, 78(2), 215–237. <https://doi.org/10.1353/jhe.2007.0008>
36. Chen, H. L., Cannon, D., Gabrio, J., Leifer, L., Toye, G., & Bailey, T. (2009). Using wikis and collaborative learning in higher education. *International Journal of Engineering Education*, 25(5), 1–10.
37. Drake, S. M., & Burns, R. C. (2004). *Meeting standards through integrated curriculum*. ASCD.
38. Freeth, R., & Caniglia, G. (2020). Learning to collaborate while collaborating: Advancing interdisciplinary sustainability research. *Sustainability Science*, 15(1), 247–261. <https://doi.org/10.1007/s11625-019-00701-z>
39. Government of India. (2020). *National Education Policy 2020*. Ministry of Education. <https://www.education.gov.in>
40. Ivanitskaya, L., Clark, D., Montgomery, G., & Primeau, R. (2002). Interdisciplinary learning: Process and outcomes. *Innovative Higher Education*, 27(2), 95–111. <https://doi.org/10.1023/A:1021105309984>
41. Knight, D. B., Lattuca, L. R., Kimball, E. W., & Reason, R. D. (2012). Understanding interdisciplinarity: Curricular and organizational features of undergraduate interdisciplinary programs. *Innovative Higher Education*, 38(2), 143–158. <https://doi.org/10.1007/s10755-012-9232-1>
42. Lattuca, L. R., Voigt, L. J., & Fath, K. Q. (2004). Does interdisciplinarity promote learning? *The Review of Higher Education*, 28(1), 23–48. <https://doi.org/10.1353/rhe.2004.0020>
43. Leung, T., Chan, C., & Lee, T. (2018). Virtual reality in interdisciplinary education: A case study. *Computers & Education*, 126, 282–295.
44. Lindvig, K., & Ulriksen, L. (2019). Different, difficult, and local: A review of interdisciplinary teaching activities. *Teaching in Higher Education*, 24(5), 593–607. <https://doi.org/10.1080/13562517.2018.1465401>
45. Lizier, J. T., Harré, M., & Prokopenko, M. (2018). A framework for the study of complex systems. *Entropy*, 20(5), 1–20.
46. Muukkonen, H., & Kajamaa, A. (2024). Knowledge practices in interdisciplinary learning environments. *Learning, Culture and Social Interaction*, 40, 100750. <https://doi.org/10.1016/j.lcsi.2023.100750>
47. Nikitina, S. (2005). Pathways of interdisciplinary cognition. *Cognition and Instruction*, 23(3), 389–425. [https://doi.org/10.1207/s1532690xci2303\\_5](https://doi.org/10.1207/s1532690xci2303_5)
48. Rao, N. (2020). Outcome-based accreditation and curriculum design in higher education. *University News*, 58(10), 15–21.
49. Reynolds, D., & Dacre, N. (2021). Interdisciplinary methodologies in engineering education. *European Journal of Engineering Education*, 46(4), 567–583.
50. Shah, M. (2023). Challenges in multidisciplinary education in India. *Higher Education Policy*, 36(2), 345–360.
51. Spelt, E. J. H., Biemans, H. J. A., Tobi, H., Luning, P. A., & Mulder, M. (2009). Teaching and learning in interdisciplinary higher education: A systematic review. *Educational Psychology Review*, 21(4), 365–378. <https://doi.org/10.1007/s10648-009-9113-z>
52. Van den Beemt, A., MacLeod, M., Van der Veen, J., Van de Ven, A., Van Baalen, S., Klaassen, R., & Boon, M. (2020). Interdisciplinary engineering education: A review of vision, teaching, and support. *Journal of Engineering Education*, 109(3), 508–555. <https://doi.org/10.1002/jee.20347>
53. Wei, Y., Ma, J., Chen, Y., & Wang, L. (2020). Interdisciplinary research development in universities: A bibliometric analysis. *Scientometrics*, 124(2), 1–20.