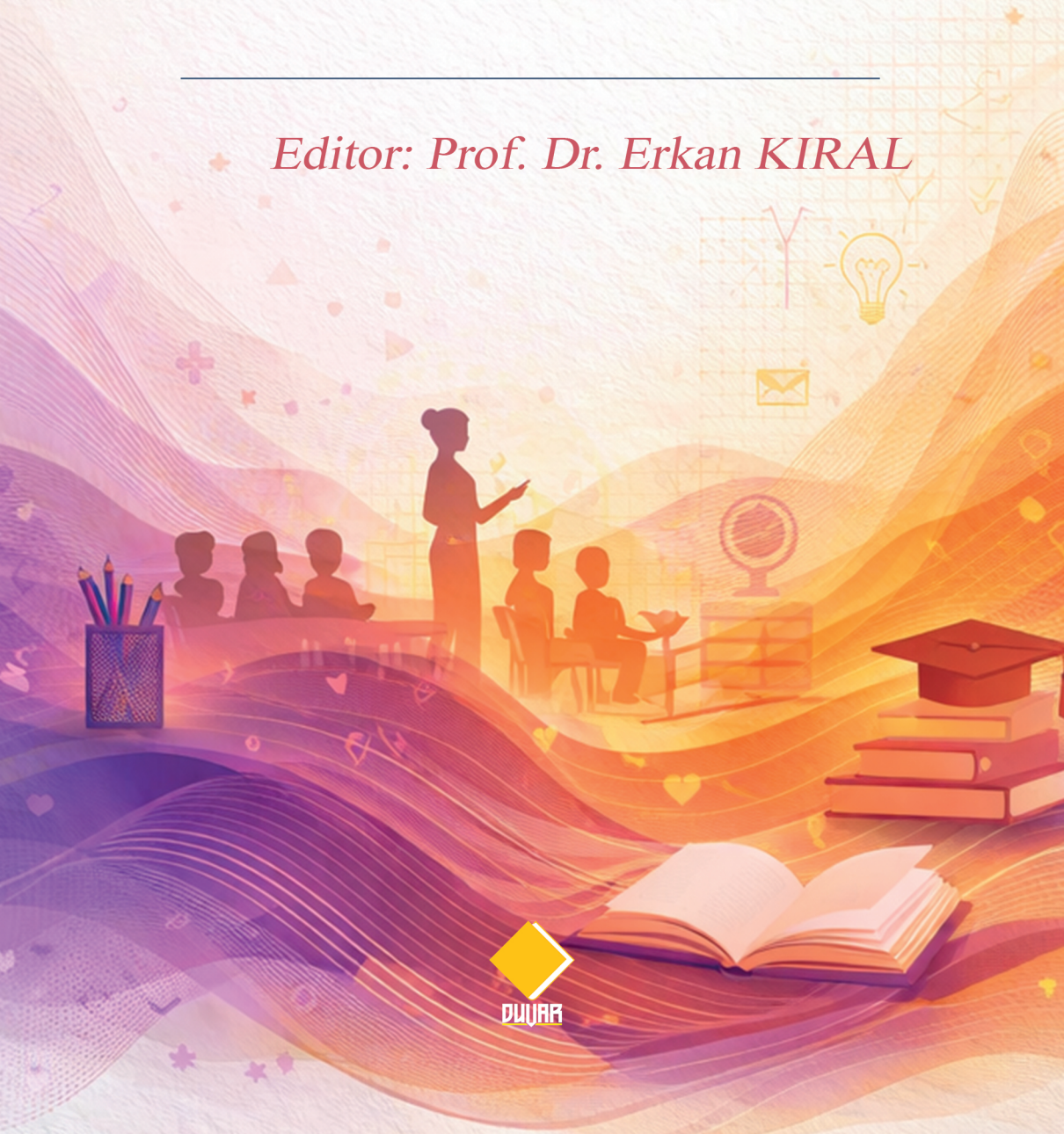


Academic Studies and New Visions in Educational Sciences

Editor: Prof. Dr. Erkan KIRAL



**ACADEMIC STUDIES AND
NEW VISIONS IN EDUCATIONAL
SCIENCES**

Editor

Prof. Dr. Erkan KIRAL



Academic Studies And New Visions In Educational Sciences

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Chapter 1

Educational Quality and Performance Evaluation

Özgü YALÇIN ÇER¹

The question of what counts as “quality” in education has become more pressing in the 2020-2026 period. The systems of education are being held accountable to provide access to all students and have been instructed to create an environment where learning occurs that measures improvement in each learner. Multidimensional is more of a qualitative measure than quantitative; therefore, the quality of education encompasses elements such as teacher quality, classroom climate, assessment literacy, equitable access and progress in learning (in grade-school); governance, accreditation, cultural integration, governance, student support and responsiveness to labor market requirements (in higher education). The recent scholarly literature shows the dichotomy between improvement and control. Quality assurance and performance measures can be rationalized as being needed to improve student learning; however, they can become an exercise in mindless routine documentation and compliance, creating external legitimacy while not actually improving the level of learning that occurs (Harvey, 2002; Khamis & Scully, 2020). As a result, additional research is asking if the educational systems' performance measures are the correct measurements of performance, whether the data has been verified as accurately measured, and whether the institutions utilize those links positively towards meaningful improvements. This review provides a comprehensive and detailed synthesis of the evolving relationship between educational quality and performance evaluation from 2020 through 2026. The selected studies provide a synthesis of the aspects related to institutional quality assurance, teacher quality, assessment quality, student feedback, professional development, and evidence on student learning outcomes. The review aims to provide an integrated understanding of how quality is conceptualized, how it is evaluated, the literature identifies what effective practices are, and the major limitations that remain in relation to those practices. Recent literature also tends to reject a narrower view of quality assurance. For example, Harvey (2024) argues that in addition to the technocratic aspects of higher education, quality assurance processes in universities

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increasingly "drift away" from conceptions of educational value commonly found throughout the academic community. Therefore, quality cannot be reduced to producing an audit trail or meeting an external standard of quality. It must in some way tie back to the educational purpose of the institution, the integrity of discipline, the growth of students and the professional agency of faculty members. A concern of similar nature emerges regarding institutional quality assurance as well. Krooi et al. (2024) suggest a systemic approach, represented by the "3P" model, for describing internal quality assurance processes within higher education institutions, in terms of the consistency of purposes, the people involved, and the processes involved. They state, "Quality is made possible through the use of internal systems; when an institution does not clarify why to engage with quality, who is involved with quality work, and how the quality processes link to learning and teaching improvements, those quality systems become unsustainable." The net effect of the 3P model is to promote a transformation of quality assurance into a socio-organizational practice as opposed to regulatory exercise. Supporting evidence of such broad indications and descriptions of quality exist in other jurisdictions as well. For instance, Mukhatayev et al. (2024) have identified four interactive elements to the definition of quality assurance in higher education in Kazakhstan: content quality, student body quality, human resource quality and infrastructure quality. Their research indicates that quality relates not only to curriculum and assessment but also in terms of entrant characteristics, staff development, physical conditions and trust among stakeholders. Similarly, Geletu et al. (2024) argue that assessments of elementary school quality must rely on an amalgamation of qualitative and quantitative information instead of a single measure. Based on the findings of these studies, quality is best conceptualized as a coherent composition of pedagogical actions, human capacities, institutional support, and methods for determining overall quality.

Performance evaluation holds a paradoxical place in literature: for institutions that lack evidence, little is known about whether teaching, curricula, support services, or governance arrangements are effective. In contrast, however, evaluation may be outright detrimental if it prioritizes symbolic conformity or measures of low validity. Finally, in higher education, Khalil (2021) discusses responsiveness to quality assurance implementation through an institutional theory lens. The key takeaway is that institutions respond to quality pressures not just because of commitment to pedagogy; they respond to coercive, normative, and mimetic pressures. This accounts for why some universities adopt quality processes on paper while failing to commit the time and attention necessary to embrace them substantively – evaluation might produce documents more easily

than it produces teaching. Khamis and Scully (2020), in a case study in East Africa, reflect on how quality assurance frameworks for teaching and learning are effective unless frameworks are rooted in understanding the realities of teaching. Their analysis suggests that external frameworks can set expectations, but the actual quality of teaching and learning depends on whether institutions have the capacity, resources and professional cultures to enact the standards in their work. Lucander and Christersson (2020) assert that quality development in higher education is a matter of engagement, particularly when it comes to the quality of assessment. Their study presents the quality assurance of assessment as process rather than an event, emphasizing iterative dialogue and the role of academic staff. The literature begins to converge on one point: performance evaluation contributes to quality when it is developmental, participatory, and connected to basic academic work; it is not connected to teaching, too standardized, and dominated by bureaucratic reporting.

Among the most important issues in educational literature from 2020 to 2026, the connection between high quality teaching and student learning has been well established (Engida et al., 2024). Through their empirical research, the authors provided current information that highlights connections between specific dimensions of teaching quality and student learning, based on domains created by the Framework for Teaching. Results indicate that English language achievement was positively associated with instructional delivery and that classroom management practices were associated with mathematics outcomes. By connecting specific dimensions of instruction and their relationship to student learning, this research is significant because it avoids generalizing the idea of “good teaching.” Recent scholarships also emphasize the importance of using well-defined concepts in evaluating teaching quality. For example, through a literature review of teacher competence in higher education, Dervenis et al. (2022) identified that teacher effectiveness in today’s universities is a function of pedagogical practice, communication, organization, relational skill and digital skill. This review is important because it broadens our perspective regarding measuring teacher effectiveness from simply thinking about what subject a teacher teaches and how students rate the teacher. Thus, if teaching has multiple dimensions, then so do evaluations of teaching quality.

The next major area for improvement in the education system is through the development of teachers professionally. Richter and Richter (2024) validated a new tool with 18 items that allows the measurement of the quality of teacher professional development; they also provide evidence that as teacher professional development continues to grow within the field of education, there will continue to be a need for practical tools that measure essential elements of professional

learning experiences occurring in classrooms on a daily basis. The evaluation of performance should not only measure what has been accomplished over time, it should serve to facilitate the teacher's ability to improve performance each year. It is also possible that existing literature on instructional quality and teacher professional development are too optimistic. To strengthen the evaluation of teacher quality, evaluation systems should develop “methodological caution”: “Teacher performance comes from one source, classroom observation, student perception or achievement; High quality evaluation uses multiple data sources, in context to draw conclusions. Recent debate regarding how to effectively evaluate teachers has shifted from “Should we evaluate teachers?” to “How do we evaluate the quality of teaching with care and utility?”

Morris et al. (2021) review formative assessment and feedback practices in higher education and write, “feedback practices can optimize learning by involving students actively in the feedback process, rather than presenting students with a set of given comments”. They discuss the dialogic feedback, the clarity of the task, timing of ‘feedback’, and opportunities to act on feedback. High quality US educational systems are not defined by how many tests are given in a year or the degree of precision in grading, but whether the assessment deepens learning. Meta-analytic evidence supports this conclusion. Yan et al. (2021) report self-assessment is positively related to academic performance. Yan et al. (2022) report several meaningful effects of self-assessment, peer assessment, and combined self/peer assessment interventions on academic performance. Synthesizing 626 effect sizes, 2022 meta-analysis show learner-involved assessment practices are not throwaway helpful novelties; they are empirically supported vehicles for improved performance. These results matter for quality assessment, because they mean that evaluators should begin to judge assessment systems based on the degree to which they develop student evaluative judgment, metacognition, and agency. Assessment, from a quality perspective, should be approached along multiple dimensions (not less than these four): validity, fairness, feedback usefulness, learning orientation. So far as a system rewards measures of performance that do not result in improved performance on these dimensions, it risks a false sense of rigor. The more systems that are likely to produce lasting improvements in performance on learning outcomes, the more they involve formative assessment, criteria, and students.

Another familiar issue is the role of students and other parties in evaluation of performance. Student voice is showing more and more in course evaluation, and in quality systems more generally, yet at the same time the literature warns against the crude deployment of satisfaction metrics. Ciuchi et al. (2024) find that student evaluation of teaching staff can contribute to quality improvement in higher

education if the evaluation process itself is done carefully methodologically, and if the evaluation is embedded in wider institutional development. They suggest that student evaluations reveal useful information not just about things teachery, but course design, study conditions, and faculty responsiveness. The insight they offer is that this information should not be thought of as proxy for quality, but as one way to deliver perspective in a multi-source evaluative system. Townspeople trying to train the dragon of quality appear in external quality assurance as well. Hou et al. (2022) study stakeholder engagement in the process of external quality assurance in Asian contexts, and whether engagement represents productive reform or disruptive disrespect for tradition. Their work suggests that stakeholder involvement can make a quality system more responsive to social and labor market needs however this can only occur if the voice of the stakeholder is meaningful from that perspective and not merely symbolic. Opening up external quality assurance to more voices therefore does not by itself improve the quality, but the design and use of the voice do. All these findings go back to the basic and striking insight which many have that people have a better educated intuition than they realize, about what constitutes good quality performance evaluation: it listens to students and to academic staff

There was a flurry of interest around evaluation of course quality from 2020, when online and blended learning started. The evaluation of quality of education and performance are perhaps two of the clearest examples which need to quickly adapt to these extraordinary and rapid changes. McInnes et al. (2024) review online course quality evaluation instruments, pointing out that the digital has generated a dizzying array of instruments and checklists designed to evaluate elements of design, interaction, accessibility and alignment. Their scoping review does not in itself provide direction, rather it is interesting to note that it finds a somewhat fractal character - and excessive number of instruments that differ in purpose and underlying theory - some attending to courses and platform usability and others much more centered on learning, presence or interaction. Digitalization of evaluation attends to new possibilities but brings new challenges - digitally mediated quality systems can miss the interpretative quality even as they throw up masses of data. This is the reason some recent literature talks of data abundance and evaluative intelligence: quality of online learning cannot be inferred from how well analytics dashboards track clicks or completion rates. Quality in online learning still hangs on pedagogical design, meaningful interaction, formative feedback, accessibility and curricular coherence.

Interest in assessing the quality of courses has dramatically increased since 2020 when online and blended learning exploded. Evaluating the quality of higher education and performance are arguably two of the most obvious examples

of the need to quickly adapt because of these unprecedented and rapid changes. In a recent article, McInnes et al. (2024) reviewed online course quality evaluation tools and observed that, due to the growth of digital learning, there are an incredible number of tools and checklists used to assess various aspects of course design, as well as interaction, accessibility, and instructional alignment. While their scoping review contributes useful information, it is notable that it also illustrates a fragmented landscape – there are many tools available each with differing purposes and foundations, with some tools emphasizing course design and usability of the platform, while others are more oriented towards learning, presence, or interaction. The evaluation of online courses through digital means is an exciting opportunity; however, using digital circumstances to evaluate quality means that there are many new possible issues to address. Digital quality systems can generate vast quantities of data that may be difficult to make sense of interpretively. For this reason, recent literature refers to both the abundance of data for quality assessment and the growing need for evaluative intelligence – one cannot estimate course quality based solely on how frequently analytics track interaction/engagement or completions of course content. Ultimately, regardless of whether a course is delivered online or face-to-face, its quality is founded upon sound pedagogical design, quality interaction and feedback, accessibility, and an associated curriculum.

The literature on the relationship between official Quality Assurance (QA) and lived Quality Culture is a central theme in recent research in Higher Education. Various studies indicate that quality systems are meaningful and useful only when they become part of the everyday practice of the institution. In their bibliometric analysis of QA in higher education institutions, Khuram et al. (2023) show that the field has expanded and that there are now increasing connections between QA and issues associated with societal impact, governance and organization — thus indicating that the QA research agenda has moved away from a parochial focus on accreditation to a greater concern with quality effectiveness and public value. Harvey (2024) warns that our decades of experience with QA has often diminished its peaceful potential through the normalization of surveillance and managerialism. This critique is relevant as a reminder to us as policymakers that QA systems may be perceived as foreign-imposed and likely to undermine academic independence and trust. Krooi et al. (2024) suggest an alternative productive re-design frameable based on aligning purpose, people, and process. Collectively these studies suggest that the future of QA is to move from QA systems heavily focused on auditing practices toward a culture of evidence-based professional growth. Empirical work from national settings corroborates this view. Mukhatayev et al. (2024) demonstrate that stakeholders associate enhanced

quality assurance with increased motivation among staff, improved infrastructure, continued professional development, and effective functioning of internal systems. Serrano et al. (2026) indicates that quality assurance effectiveness is impacted positively through resources allocated to quality assurance, management support, faculty participation, and quality of infrastructure. Quality culture is not merely an optional term but has identifiable characteristics associated with organizations and is therefore able to be measured.

Based on recent developments within the fields of educational evaluation and performance measurement, there appears to be increasing sophistication with methodological approaches these researchers are using. More scholars are utilizing composite models, structural relationship models, and multi-criteria decision frameworks, rather than solely measuring using single-index methodologies. Nagy (2025) has identified some of these developments as they relate to performance measurement and quality assurance application to higher education. The growing complexity of these applications will demonstrate to educational evaluators that they should not hesitate to use finer analytic models in making their evaluations of this social good using single metrics. The methods of sampling complex organizations with multiple quality dimensions will lend themselves to dynamic sampling using various methodologies. Serrano et al. (2025) have reported that quality-assuring system effectiveness is shaped by the same organizational climate characteristics that impact overall institutional performance. The distinction between the two is an important methodological clarification: having a system does not mean that system is effective. The literature also cautions against the use of excessive abstraction in measurement methodologies. Unless the performance measurement model is meaningful and can be used by institutions, it has little value. Any introduced performance measurement model will function more as an addition than as a replacement for judgement or educational evaluations.

When comparing schools with higher education institutions, numerous cross-cutting conclusions can be identified. First, educational quality is rich in process and context sensitive. The best studies do not measure quality through the outcomes alone. Rather, “They juxtapose outcome measures with studies of instructional practices, feedback loops, professional development, institutional conditions and stakeholder involvement” (Engida et al. 2024; Krooi et al. 2024; Mukhatayev et al. 2024). Second, performance evaluation is best when linked to improvements. As Lucander and Christersson (2020), Morris et al. (2021), Richter and Richter (2024), and Ciuchi et al. (2024) each clarify in their respective manners, evaluation is most productive when informing practice, contributing to reflection and helping create better professional learning. Third,

quality of assessment; there is ample evidence through formative assessment, self-assessment and peer assessment that improved assessments can improve student-learning outcomes (Morris et al. 2021; Yan et al. 2021; Yan et al. 2022). A system cannot claim to produce quality education if its assessment system lacks credibility, transparency and is not aligned with actual student-learning outcomes. Fourth, there can be no quality assurance when quality culture does not exist; bureaucratic systems can assure compliance, but they cannot guarantee the transformation of teaching and learning. Most recent studies therefore focus heavily on leadership, alignment, engagement, and internal ownership (Harvey 2024; Khuram et al. 2023; Serrano et al. 2026). Fifth, we must take a renewed look at what we measure in digitally enhanced education. The wide availability of analytics, dashboards, and generated indicators from digital platforms has made some types of evaluation easier from a technical standpoint than in the past; however, they have not improved educationally. As McInnes et al. (2024) point out, the numerous trivial evaluation tools must be reviewed concurrently with their conceptual clarity.

This comprehensive overview reviews the diverse interplay between psychological dimensions and academic success within the framework of recent educational literature for the period 2020-2026. The review of current research unfolds that academic achievement is not merely a function of cognitive capacity or pedagogical excellence but is deeply shaped by a rich tapestry of psychological factors including motivation, self-regulation, emotional wellness, self-efficacy, and social context. These insights underscore the imperative for educational research and pedagogy alike to embrace a holistic and multidisciplinary viewpoint. Perhaps the most prolific finding throughout the review of literature was the role motivation has in pronouncing certain academic outcomes. As many have noted, both intrinsic and extrinsic motivation can be very powerful for a student's engagement, persistence, and overall outcomes. Researchers during the early part of the 21st century seemed to be leaning toward taking the view of intrinsic motivation having a stronger foothold in students' lives when it came to enduring long and successful academic careers. These students who engage in an activity or learning out of personal interest to themselves usually display cognitive engagement, more deeply developed learning strategies and appear to be more resilient when faced by academic challenges. While extrinsic motivation does seem to work in the short term in some cases, it appears more difficult to achieve meaningful learning and retention if there is not intrinsic motivation propelling the students along their educational journey. Closely related to motivation is that of self-regulated learning, which has in recent years emerged as perhaps the best predictor of success at school. Self-regulated learners are

those who plan, monitor and evaluate their own learning, enhancing their ability to reach academic goals. One aspect of the increasing importance of self-regulated learning is the prevalence of online and blended learning environments: require students to manage their time, attention and learning strategies in new ways. Literature on self-regulation has pointed to the particular importance of self-regulatory skills in adapting to new demands that may arise from changing educational contexts.

This evaluative review additionally identifies the influence of emotional/psychological health on educational outcomes. Research shows that students' mental health can affect academic success directly and indirectly. Furthermore, because of the COVID-19 pandemic and the disruption in educational experiences, psychological resilience has gained further importance and relevance to this population. Generally, a large level of academic stress and/or anxiety may result in decreased concentration, poor memory and limited academic performance. Conversely, positivity establishes a better foundation for academic success. These findings illustrate a need for integrating mental health services into all educational systems as a critical component of student academic success, rather than a supportive service. Self-efficacy is generally defined as an individual's belief in their ability to complete a specific task successfully. Such a belief has a strong impact on whether a person will be successful in academic pursuits; students with a high level of self-efficacy tend to set high expectations/goals for themselves and achieve them, persist despite barriers and demonstrate an increased likelihood of applying appropriate study/learning strategies. Strong relationships between self-efficacy and academic success and between self-efficacy and student aspirations and choices about future education have been demonstrated in numerous studies. In addition, self-efficacy is not an inherent trait that is present from birth until death; rather, it can be acquired through positive experiences, constructive feedback, and favorable teaching practices. Therefore, through the development of self-confidence and self-efficacy, educators can assist their students in becoming academically successful.

In addition to one's psychological makeup, one's environment be taken into consideration with respect to how successfully a student performs at school academically. Family support, peer relationships and teacher-student relationships all influence a student's learning environment. Healthy social support systems for students will increase student motivation, emotional wellbeing, and school engagement; conversely, an unhealthy or lack of social support will have the opposite effect on a student's chances for academic success. Recent research has demonstrated that SEL programs implemented at schools have led to improved psychological well-being as well as academic success

among students. The studies being reviewed provide insight into how to develop positive, supportive, and cooperative classroom/learning environments that are conducive to meeting the diverse and individual needs of students. As noted in the literature, the connection between psychological factors and academic achievement will increase due to the increased use of digital technology. With the development of online learning platforms, new educational application software and the emergence of digital communication technologies, numerous opportunities to develop more personalized and flexible learning pathways exist; however, difficulties associated with these technologies also exist with respect to a student's ability to focus, stay motivated and manage their cognitive overload. According to the literature, to effectively utilize these new digital tools, one must possess both the technical skill to operate them, as well as the psychological competence to succeed while using them. Therefore, it is essential that any future educational initiative developed for the digital age will consider both the technological and the psychological components of the educational process, in order to create successful learners.

Methodologically, this study's investigations have also exhibited some movement toward mixed methods and interdisciplinary research. Quantitative research yields significant data about how different variables relate to each other in terms of producing academic outcomes, while qualitative studies yield insight into students lived experience and context. As such, qualitative studies add to the methodological diversity of this field, thereby allowing for additional opportunities for some longitudinal or cross-cultural studies. Considering the substantial developments that have occurred within this research area, there are still many gaps and limitations that exist. As an example, a considerable amount of the currently available literature exists within specific geographic locations, particularly in developed nations. As a result, these findings cannot be generalized and more methodologically rigorous studies examining interactions between more than one psychological variable and undertaking studies that examine the impact of rapidly evolving educational technology on learning are warranted. One broad implication of this review is related to practice, specifically to teaching; however, the authors did not provide insight into what types of methods/approaches are best to employ in the classroom. What appeared to concern the authors were methods/approaches that were being promoted based solely on how popular they were within the classroom and not because of the significant amount of Behavioral data supporting their effectiveness to enhance learning. Furthermore, this review reinforces the psychological perspective and demonstrates how frequently learning is influenced by this perspective. There was also significant discussion regarding major components of the learning

process, such as learning objectives, motivation, self-control/self-discipline, retrieval and organization of knowledge, critical thinking, and the broad effects of emotional well-being on cognition. Additionally, the authors made several references, and quoted evidence from the literature, as to when teachers should make such considerations regarding teaching.

In conclusion, academic achievement is a complex and multidimensional construct that cannot be fully understood without considering the psychological factors that influence learning. Evidence obtained between 2020-2026 confirms that motivation, self-regulation, emotional well-being, confidence and social context are key factors in achieving educational success. By continuing the use of a whole-system approach to education, we can create platforms that produce holistic development as well as academic success. Ultimately, we wish to provide students with the opportunity to be resilient, motivated, happy individuals in an increasingly chaotic and unpredictable time in the world.

Kaynaklar

- Ciuchi, O. M., Şerbănescu, L. E., Dobre, C. M., Georgescu, B. G., Țigănoaia, B. D., & Țucă, P. L. (2024). The impact of student evaluation of teaching staff on enhancing the quality of teaching in higher education in Romania. *Sustainability*, 16(23), 1-15. <https://doi.org/10.3390/su162310196>
- Dervenis, C., Fitsilis, P., & Iatrellis, O. (2022). A review of research on teacher competencies in higher education. *Quality Assurance in Education*, 30(2), 199-220. <https://doi.org/10.1108/QAE-08-2021-0126>
- Engida, M. A., Iyasu, A. S., & Fentie, Y. M. (2024). Impact of teaching quality on student achievement: student evidence. *Frontiers in Education*, 9, 1-12. <https://doi.org/10.3389/educ.2024.1367317>
- Geletu, G. M., Ibrahim, A. K., & Adula, B. K. (2024). The qualitative and quantitative measurements of quality education for-and-against standards and indicators of high, medium and low performing primary schools in Ethiopia. *Education*, 3, 13-23. <https://doi.org/10.1080/03004279.2024.2312971>
- Harvey, L. (2024). What have we learned from 30 years of Quality in Higher Education: academics' views of quality assurance. *Quality in Higher Education*, 30(3), 360-375. <https://doi.org/10.1080/13538322.2024.2385793>
- Hou, A. Y. C., Hill, C., Justiniano, D., Lin, A. F. Y., & Tasi, S. (2022). Is employer engagement effective in external quality assurance of higher education? A paradigm shift or QA disruption from quality assurance perspectives in Asia. *Higher Education*, 84, 935-954. <https://doi.org/10.1007/s10734-021-00808-2>
- Khalil, M. (2021). Responsiveness to quality assurance implementation: An institutional theory perspective. *Quality Assurance in Education*, 29(1), 41-52. <https://doi.org/10.1108/QAE-06-2020-0074>
- Khamis, T., & Scully, S. (2020). Questioning the efficacy of quality assurance frameworks for teaching and learning: A case study from East Africa. *Quality in Higher Education*, 26(1), 3-13. <https://doi.org/10.1080/13538322.2020.1728836>
- Khuram, S., Rehman, C. A., Nasir, N., & Elahi, N. S. (2023). A bibliometric analysis of quality assurance in higher education institutions: Implications for assessing university's societal impact. *Evaluation and Program Planning*, 99, 1-16. <https://doi.org/10.1016/j.evalprogplan.2023.102319>
- Krooi, M., Whittingham, J., & Beusaert, S. (2024). Introducing the 3P conceptual model of internal quality assurance in higher education: A

- systematic literature review. *Studies in Educational Evaluation*, 82, 1-15. <https://doi.org/10.1016/j.stueduc.2024.101360>
- Lucander, H., & Christersson, C. (2020). Engagement for quality development in higher education: A process for quality assurance of assessment. *Quality in Higher Education*, 26(2), 135-155. <https://doi.org/10.1080/13538322.2020.1761008>
- McInnes, R., Hobson, J. E., Johnson, K. L., Cramp, J., Aitchison, C., & Baldock, K. L. (2024). Online course quality evaluation instruments: A scoping review. *Australasian Journal of Educational Technology*, 40(2), 55-75. <https://doi.org/10.14742/ajet.8978>
- Morris, R., Perry, T., & Wardle, L. (2021). Formative assessment and feedback for learning in higher education: A systematic review. *Review of Education*, 9(3), 1-26. <https://doi.org/10.1002/rev3.3292>
- Mukhatayev, A., Omirbayev, S., Kassenov, K., & Idiyatova, Y. (2024). Quality Assurance System of Higher Education in Kazakhstan Through Stakeholders' Eyes: An Empirical Study to Identify Its Challenges. *Education Sciences*, 14, 2-36. <https://doi.org/10.3390/educsci14121297>
- Nagy, G. (2025). Performance Measurement and Quality Assurance in Higher Education: Application of DEA, AHP, and Bayesian Models. *Trends in Higher Education*, 4(54), 2-20. <https://doi.org/10.3390/higheredu4030054>
- Richter, E., & Richter, D. (2024). Measuring the quality of teacher professional development: A large-scale validation study of an 18-item instrument for daily use. *Studies in Educational Evaluation*, 81, 1-9. <https://doi.org/10.1016/j.stueduc.2024.101357>
- Serrano, O. M. E., Miranda Gonzalez, F., & Mourato, J. (2025). Determinants of the effectiveness of quality assurance systems and institutional performance in higher education. *Cogent Education*, 12(1) 1-20. <https://doi.org/10.1080/2331186X.2025.2581411>
- Serrano, O., Miranda Gonzalez, F., & Mourato, J. (2026). Impact of Quality Assurance on Higher Education Institution Performance: Differences Between Public and Private Institutions. *Societies*, 16(76), 2-19. <https://doi.org/10.3390/soc16030076>
- Yan, Z., Lao, H., Panadero, E., Fernández-Castilla, B., Yang, L., & Yang, M. (2022). Effects of self-assessment and peer-assessment interventions on academic performance: A meta-analysis. *Educational Research Review*, 37, 1-15. <https://doi.org/10.1016/j.edurev.2022.100484>
- Yan, Z., Wang, X., Boud, D., & Lao, H. (2023). The effect of self-assessment on academic performance and the role of explicitness: a meta-

analysis. *Assessment & Evaluation in Higher Education*, 48(1), 1–15.
<https://doi.org/10.1080/02602938.2021.2012644>

Chapter 2

Motivation and Learning Outcomes

Özgü YALÇIN ÇER¹

Motivation remains one of the most powerful explanatory constructs in educational research because it helps answer a central question: why do some students persist, invest effort, and attain high-quality learning, whereas others disengage, underperform, or withdraw? From 2020 to 2026, three major developments have emerged in the literature on motivation and achievement. First, the field has become more integrative, drawing on self-determination, expectancy-value, social-cognitive, achievement goal, and interest-based theories to provide a more comprehensive account of learning behaviors (Ryan & Deci, 2020; Hattie, et al., 2020; Urhahne & Wijnia, 2023). Secondly, researchers have moved beyond simple bivariate correlations and have explored mediating mechanisms such as self-regulated learning, engagement, learning strategies, anxiety and academic buoyancy. Thirdly, there is increased awareness of teachers' roles, the peer climate, online versus hybrid learning and differences within institutions. This review examines how motivation relates to learning outcomes rather than treating motivation as an isolated construct. In this article, learning outcomes are defined broadly to include academic performance, but also refer to behaviors related to persistence, connectedness, self-regulated learners, satisfaction, adjustment to school, aspirations and students' approaches to learning. This broader definition aligns with recent theoretical developments in which it has been determined that achievement scores are insufficient on their own to justify the educational implications of motivation (Howard et al., 2021; Urhahne & Wijnia, 2023). The aims of the review include clarifying the conceptual underpinnings for interpreting current research, synthesizing the empirical evidence regarding motivation and learning outcomes, exploring contextual conditions and intervention-type studies affecting the relationship between motivation and learning outcomes, and discussing some implications for educational programs, curricular design, and future research.

Current research suggests that motivation should not be thought of as a single quantity of effort or desire. Ryan & Deci (2020) delineate intrinsic motivation, identified regulation, introjected regulation, external regulation, and amotivation,

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asserting that motivation varies qualitatively, since students can act with very different amounts of autonomy. Such a distinction has proven particularly useful in educational settings since it accounts for why two students may exert similar levels of effort yet feel and learn very differently in the process. Howard, et al. (2021), in a large meta-analysis using self-determination theory as an organizing framework, provides evidence that intrinsic motivation and identified regulation are beneficially and consistently associated with educational outcomes, whereas external regulation is weaker or more selective in its associations, and amotivation is negatively and reliably associated with outcomes. Their synthesis helps move the literature beyond the earlier assumption that any motivation is good motivation, to the idea that more self-endorsed forms of motivation are particularly important for prolonged and adaptive learning. However, recent integrative reviews suggest that reliance on a single theoretical approach to motivation is problematic. Hattie et al. (2020) and Urhahne and Wijnia (2023) review self-determination theory, expectancy-value theory, social-cognitive theory, interest theory, achievement goal theory, and attribution theory, arguing that all these approaches illuminate different aspects of motivated action. Expectancies, values, perceived competence, goals, interest, costs, interpretations of success or failure all condition a student's chances of starting to learn, persisting when things get difficult, and turning an opportunity to study into a meaningful outcome. For a complete account of motivation and learning outcomes, motivational quality must be understood together with the cognitive-evaluative processes that promote or diminish it. This is the point underscored by a recent critical review by Ishida and Sekiyama (2024) of 84 empirical studies published between 2017 and 2023. They found that studies identified six broad families of factors impacting motivation for learning: psychological values, cognitive factors, social and environmental influences, demographics, academic background and study habits, and interventions or programs. Their review is helpful because it makes clear that motivation is not some narrowly intrapsychic construct. It is a relational and contextual process of interactions between people, tasks, institutions, and social environments.

The literature from 2020 to 2026 indicates that motivational variables provide the strongest associations with learning outcomes. However, the strength and form of the relationship will vary with both the type of motivation and what is being measured. Howard, et al. (2021) demonstrated that intrinsic motivation correlates to positive well-being and adaptive educational adjustment; whereas, identified regulation significantly relates to persistence and long-term dedication. Conversely, amotivation is correlated with maladaptive outcomes. These findings provide an important foundation for understanding future empirical studies. The

present examination of pathways leading toward both autonomous and controlled motivation offers additional support for conclusions drawn by Bureau et al. (2022). A key finding in the motivation literature is that motivational processes follow a structured pattern, shaped by core antecedent variables, including autonomy support, structure, involvement, and need satisfaction. Such findings are important because they indicate that differences in students' performance will be due to the existence of differing motivational climates, rather than solely because of individual dispositions. Therefore, schools and universities do not simply receive students who are motivated (or not) but they also shape students' motivational orientations through everyday pedagogical practices.

Motivation's predictive significance is evident from both longitudinal and metatheoretical studies. Lavrijsen et al. (2022) have demonstrated that, in addition to intelligence and personality traits, motivation can predict variation in academic performance. This finding is notable because it addresses a major criticism of motivational research: that it may reflect the prior level of ability or stable personality traits. The authors conclude that motivation has an independent explanatory capacity. This does not imply that cognitive abilities are unimportant, but rather that educational outcomes will be better understood when competence-oriented reasoning is integrated with motivational reasoning. Jenö et al. (2023), the support of autonomy, autonomous motivation, and a perceived sense of competence facilitates the academic functioning of students in higher education. This pattern is consistent with theories associated with self-determination, as well as with expectancy-value and social cognitive traditions; the perceived levels of agency and competence shown by the student enhance students' effort and the persistence demonstrated when completing an academic task.

Recent research on the causal relationship between motivation and achievement has shifted from an examination of whether motivation predicts achievement to an examination of how motivation predicts achievement with the emergence of recent studies published between 2020 and 2026. The results of the studies identify indirect relationships between motivation and learning outcomes; these indirect effects occur through students' study behaviors, emotional regulation, and academic engagement. This represents a shift away from simple linear models in which motivation directly predicts academic achievement, toward models that recognize the complex and dynamic nature of motivation. The evidence supporting this claim is robust, as presented by Theobald (2021). A meta-analysis of self-regulated learning training programs for university students showed substantial evidence that self-regulated learning interventions improved student achievement, the application of self-regulated learning strategies and intrinsic motivation. Another unique finding resulting from the study is the

reciprocal nature of motivation and the use of strategies in self-regulated learning. Motivation precedes and supports the use of learning strategies when learning. However, the use of strategies can also facilitate motivation in the future. Students who have high-quality motivation appear to engage in goal setting, monitoring their understanding, managing their time effectively, and persisting when faced with difficulties. The successful regulation of one's behaviors will serve to strengthen beliefs of one's competence and contribute to the maintenance of motivation.

Aydin and Michou (2020) provide an even broader picture. They find self-determined motivation also predicts achievement in part through how students respond to routine academic bumps. Education is rarely a single high-stakes event; rather, it often depends on students' recovery from setbacks. Motivation thus has a role to play in the recovery process. More recent work further confirms and elaborates these mediating pathways. Huang et al. (2025) reported among low-income college students that intrinsic motivation was positively related to grade point average both directly and indirectly by way of learning strategies and lower stress, while extrinsic motivation contributed indirectly by way of strategy use; amotivation had the most negative pathway, again via both lower strategy use and greater stress. These findings are interesting as they connect motivation to educational inequality: for vulnerable students, the pathway from motivation to performance may be disrupted by stress and lack of resources. Xie et al. (2026) showed that Autonomous motivation predicts college students' academic performance partly through learning habits, as well as through a sequential pathway involving self-control and the development of study habits. When examined independently, self-control did not function as a significant mediator; rather, habitual learning routines emerged as the primary mediating factor. This is an important nuance - motivation is likely to be more educationally productive if it is translated to habitual study routines than left floating at the level of intention or trait-like self-discipline. Ultimately, these studies suggest that motivation influences learning outcomes most robustly when it is behaviorally embodied in strategic action, emotionally protective coping, and adaptive study routines. The key implication is not to foster motivation only through slogans, rewards, or encouragement, but to ground it in learnable behaviors and supportive infrastructure.

Much of the work within the field is focused on social interactions via the lens of motivation. The literature we reviewed indicates that the following contextual factors may serve as reliable predictors of beneficial motivation: teacher autonomy support, competent and effective adult guidance, supportive feedback from adults, and emotionally safe classroom environments. Mammadov &

Schroeder (2023) provided an extensive literature review, with close to 378 unique effect sizes, showing strong associations between different outcomes for productive learning—such as autonomous and engaged motivation; self-regulated learning; self-efficacy beliefs; and academic performance. Although the weakest association was found between autonomous motivation and academic performance, more robust relations were found between autonomous motivation and engaged motivation, suggesting that supportive contexts for students positively impact their academic performance by positively affecting students' motivational processes. Additionally, this logic is present in the work by Jenő et al. (2023), which found that both autonomy support and students' perceived competence are predictors of their academic functioning. This finding highlights an important principle of educational design: support does not equate to permissiveness. Students learn best when they have the opportunity to make choices, are provided clear rationale for those choices, and have their point of view recognised while at the same time having guidance within a structured system of competence.

Teachers are clearly an important part of the motivation of students, and recent research indicates the exact roles that they can play in supporting the academic motivation of their students (Asadpour et al., 2025). The systematic review of Asadpour et al. (2025) identified several factors that affect academic motivation and identified teachers as central motivational agents based on their instructional practices, their emotional support for students, their setting of expectations for their students, and the way in which they effectively manage their classrooms. Asadpour et al. (2025) conclude that the support provided by teachers is not limited to simply praising or encouraging students to become more motivated in their studies. According to them, teachers' roles in supporting the motivation of their students are based on how teachers design assignments, how teachers scaffold their instruction, and how teachers establish and maintain a positive interpersonal tone. All of these aspects of the teaching process impact whether or not learners believe that the lessons they learn are relevant and purposeful, and they will foster both social competence and social respect among learners. In support of the conclusions drawn by Asadpour et al. (2025), Chen et al. (2025) provide empirical evidence in the context of higher education in China. The authors identified that a teacher's competence has a significantly positive impact on his/her students' flourishing as learners and their level of student engagement with their studies and that the teacher's competence has a positive impact on the motivation of students for learning English as a foreign language. Further, Chen et al. (2025) indicated that by integrating Artificial Intelligence into their classrooms, many of the pathways identified by them as supporting student

engagement and motivation were strengthened by the use of technology and that technology is not necessarily a substitute for quality pedagogy but is an extremely valuable tool for implementing quality pedagogy. Chen et al. (2025) make an extremely important point as it relates to the post-pandemic educational landscape: digital sophistication does not guarantee that students will be motivated to learn; therefore, pedagogical credibility, the application of pedagogical ideas, and a well-designed student-centered instructional approach to classroom teaching will ultimately determine the level of motivation experienced by students (Chen et al., 2025). Lastly, Knickenberg and Zurbriggen (2025) found that peer relationships and the social climate of a classroom play an important role in determining students' current levels of academic motivation. According to Knickenberg and Zurbriggen (2025), students' current levels of motivation were significantly higher when they interacted with their peers, perceived their classroom's social climate to be positive, and believed that their peers were supportive of their academic successes. Based on the findings of Knickenberg and Zurbriggen (2025), it can be concluded that motivation is a dynamic and situated state that will continue to change as students interact with their peers in classrooms. Therefore, classroom design should be structured to support purposeful collaborative exchanges, peer explanations of learning, and supportive interactions from peers rather than promoting isolation from peers during periods of study.

The 2020-2026 period was characterized by the educational consequences of the COVID-19 pandemic and the subsequent proliferation of online, blended, and AI-supported learning environments. These changes have illustrated how sensitive motivation is to modality of instruction, structuring of tasks, and sense of connection and social isolation. Martin (2023) showed that lockdown, isolation, and remote or hybrid learning conditions were related to meaningful differences in university students' motivation and engagement. The study does not support the simplistic assertion that online learning is always likely to be demotivating, rather that the consequences for motivation depend upon the ways that remote learning changes the structure, social contact, monitoring, and students' sense of control. Ramirez-Arellano (2024) investigated students' academic engagement and metacognitive-cognitive strategies in online higher education, finding that personality traits primarily inform engagement while engagement mediates the relationships to learning strategies. Although not pure achievement study, the study is pertinent in showing the way processes related to motivation activity in the digital realm depend on engagement and the strategic use of resources. The digital space can exacerbate tendencies to either initiate or manage poorly unless class design consciously encourages such regulation in

students. Learning technologies often contain treasure chests of high-value resources that students fail to benefit from unless they're mentored effectively. Their uptake is regulated by motivational beliefs and self-regulatory capacities. The implication of this finding is that institutions need to think of students' access to resources and their effective use as separate problems. Chen et al. (2025) also bring AI into the picture, showing that AI integration moderates the relationship between flourishing, engagement, and motivation. However, the underlying story is still a pedagogical one: the digital tools are motivationally productive to the extent that they support relevance, feedback, and interaction, and learner competence, but not when they simply increase novelty.

Motivation does not always work the same way across subjects, year groups, and educational phases. Recent work suggests that the specific costs and values associated with domains can combine creating motivational profiles with different consequences for how students learn and achieve. Putwain et al. (2024) focused on early adolescents studying science and found that the best "achievement and aspiration" profiles students tend to have a combination of high expectancy and subjective task value and low perceived cost. This highlights an often-overlooked point of motivation: students can highly value a subject and still underperform if the psychological, emotional, or workload of engaging with it is too high. Developmentally, it appears that motivational processes are evident in school and university contexts, but that the structure and associated processes are different. For younger students, peer climate and social interaction in the classroom can be directly implicated in contemporary academic motivation (Knickenberg & Zurbriggen, 2025). In higher education, the relationship with motivation is more often captured through the lens of self-regulation, academic habits, persistence, and platform resource use (Jeno et al., 2023; Xie et al., 2026). This should not imply that young students operate without regulatory processes or that university students are unimpressed by social context, but that development simply reshapes the salience of motivational support. Another recurring pattern relates to student heterogeneity. Ishida and Sekiyama (2024) identify demographic characteristics, prior academic knowledge, and study habits as variables that repeatedly predict motivation. Huang et al. (2025) find that economic disadvantage can change the path through which motivation influences achievement. Educational programs and practices should not assume some universal motivational pathway. The same curricular design may benefit one group of students while disadvantaging another depending on their readiness to benefit, exposure to stress, and support available.

The most compelling evidence of intervention success in recent years is still for active, structured, and autonomy-enhancing educational designs. Theobald

(2021) shows that self-regulated learning training can enhance motivation and boost academic performance. This is an important finding for educators because it shows that motivation can be developed indirectly through instruction about how to learn, plan, monitor, and adjust learning through reflection. Simón-Grábalos et al. (2025), targeting first year university students, systematically reviewed interventions to enhance self-regulation of learning and found that structured support across the transition period can reinforce students' ability to learn according to demand. Motivation change is a common occurrence for first-year students; this suggests that schools can incorporate support for the motivation of students into their orientation classes, foundational courses, and early semester assessments. Costa and Reis (2025) completed an analysis of active learning methods and concluded that implementation of project-based, collaborative, gamified, and flipped learning models will positively impact motivation and academic performance if each method is implemented in a thoughtful manner. The major element of concern is that the active learning method used is implemented consistently throughout the semester. Active learning cannot be motivated simply by defining it as an active learning method; however, the design characteristics cannot create an atmosphere of busy work, vagueness or ambiguity of task, performing a task publicly that is both risky and/or a burden, hence there will be no motivation. Both recent literature reviews indicate that the specific methodology associated with the active learning method utilized has less importance than the characteristics of the specific design features such as the relevance of the task to the topic being learned about, the clarity of the task to be fulfilled, autonomy of the student in completing the assigned task, providing the student with timely and constructive feedback, providing social support for the students, and making the challenge to complete the task manageable. Other studies have proven that problem-based learning methods produce a moderate positive impact on cognitive and effective learning (Koçoğlu & Kanadlı, 2025). These studies have not measured motivation but have strong ties to motivation theories because completing problem-based activities will help the student achieve a positive student learning outcome. Overall, the intervention research supports the concept that an educational program will improve motivation and learning outcomes if four objectives are accomplished simultaneously: provide the student with meaningful goals; provide students with autonomy; teach the student how to learn; and, promote and nurture emotionally supportive relationships between students and educators.

This literature review (2020 to 2026) for designers of curricula and program developers has several implications for the content and delivery of the curriculum. First, motivation needs to be intentionally designed into the

curriculum as opposed to an afterthought; effective programs need to make the learning goals, such as developing life skills, explicit; ground the content in something meaningful to the student; and provide rationales to help the student understand the value of investing time and energy into the learning experience (Howard et al., 2021). Second, programs should maximize for the student's autonomy; however, it is essential that the structural framework remains. While student choice, agency, and voice are necessary components for students to be motivated, they also need clear expectations, tasks that are sequenced, and feedback that will improve the learner's perceived competence (Jeno et al., 2023; Mammadov & Schroeder, 2023). The evidence to support the false dichotomy between autonomy and rigor is that high-quality learning environments have integrated both autonomy and rigorous expectations; therefore, both are necessary for a student to experience motivation to engage in a learning experience. Third, the curricula should explicitly design for the teaching of Self-Regulated Learning; Theobald (2021), Huang et al. (2025), and Xie et al. (2026) have all articulated that motivation becomes pedagogically useful when transformed into pedagogical learning strategies, habits, and stress relief techniques. The teaching of these learning strategies should not be left to the specialized instructor who instructs study skills in isolation during study skill workshops outside of the curriculum. They need to be included within the instructional structure of all disciplines. Fourth, a design for motivation through engagement within the classroom and between the peers within the classroom is related. According to Knickenberg and Zurbriggen (2025), current motivation develops through the level of engagement with peers and the social climate of the classroom; therefore, the implementation of good collaborative structures meet both motivational and cognitive needs of the students. The importance of teacher competence and relational quality is equally relevant in high technology environments, as noted by Asadpour et al. (2025) and Chen et al. (2025). Finally, the design for motivation needs to be just. If a student's experience of stress, financial difficulties, prior disadvantages, or lack of institutional belonging result in a lack of clarity in the path from motivation to performance, then improving the results of the student is not just about convincing the student to work harder. All support structures, formative assessments, timely feedback, and accessible learning resources support motivation and should be included (Huang et al., 2025).

The literature from 2020-2026 offers a coherent and increasingly sophisticated account of the relationship between motivation and learning outcomes. Motivation is important; however, it is not a simple one-dimensional construct. Research indicates students will benefit the most from autonomous, competence-

satisfying and value-based motivating states, while those who have controlled and/or amotivated states have less adaptive and often negative outcomes over time. However, motivation does not act independently; rather, its effects are transmitted through self-regulation, engagement, habits, stress processes, academic buoyancy and the quality of everyday learning interactions. Furthermore, a thorough examination of motivation as contextual will show that various factors contribute to its activation, maintenance and depletion. The five dimensions influencing motivation are teacher competence, autonomy support, peer climate, classroom ecology and digital design. In this way, creating environments conducive to fostering high-quality motivation and helping students translate that motivation into positive outcomes becomes the primary purpose of education, rather than merely measuring the student's motivation. For educational programs, the most defensible conclusion is simple: To achieve improved learning outcomes, institutions must design for motivation across all parts of their education program. Design at all levels of the curriculum, pedagogy, assessment, support systems and social climate must explicitly account for student motivation. Student motivation is neither an optional add-on nor merely an individual characteristic. Student motivation is an essential mechanism through which teaching becomes learning.

References

- Asadpour, M., Hashemi Bakhshi, M., Mirzapour, P., & Shahabi, M. (2025). The motivational role of teachers: A systematic review of key factors influencing students' academic motivation. *European Journal of Psychology of Education, 40*(133), 2-43. <https://doi.org/10.1007/s10212-025-01039-0>
- Aydin, G., & Michou, A. (2020). Self-determined motivation and academic buoyancy as predictors of achievement in normative settings. *British Journal of Educational Psychology, 90*(4), 964-980. <https://doi.org/10.1111/bjep.12338>
- Bureau, J. S., Howard, J. L., Chong, J. X. Y., & Guay, F. (2022). Pathways to Student Motivation: A Meta-Analysis of Antecedents of Autonomous and Controlled Motivations. *Review of Educational Research, 92*(1), 46-72. <https://doi.org/10.3102/00346543211042426>
- Chen, X., Samad, S., & Kim, W. (2025). Teacher competence and students' motivation for learning in Chinese higher education: Mediating roles of psychological flourishing and student engagement, and the moderating role of AI integration. *BMC Psychology, 13*(1378), 2-18. <https://doi.org/10.1186/s40359-025-03674-0>
- Costa, L. M. G., & Reis, M. J. C. S. (2025). Motivational teaching techniques in secondary and higher education: A systematic review of active learning methodologies. *Digital, 5*(40), 2-18. <https://doi.org/10.3390/digital5030040>
- Hattie, J., Hodis, F. A., & Kang, S. H. K. (2020). Theories of motivation: Integration and ways forward. *Contemporary Educational Psychology, 61*, 1-8. <https://doi.org/10.1016/j.cedpsych.2020.101865>
- Howard, J. L., Bureau, J., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from self-determination theory. *Perspectives on Psychological Science, 16*(6), 1300-1323. <https://doi.org/10.1177/1745691620966789>
- Huang, Y., Liu, Z., Chen, Y., & Wang, M. (2025). The impact of learning motivation on academic performance among low-income college students: The mediating roles of learning strategies and mental health. *Frontiers in Psychology, 16*, 1-10. <https://doi.org/10.3389/fpsyg.2025.1639375>
- Ishida, A., & Sekiyama, T. (2024). Variables influencing students' learning motivation: Critical literature review. *Frontiers in Education, 9*, 1-6. <https://doi.org/10.3389/educ.2024.1445011>

- Jeno, L. M., Nylehn, J., Hole, T. N., Raaheim, A., Velle, G., & Vandvik, V. (2023). Motivational determinants of students' academic functioning: The role of autonomy-support, autonomous motivation, and perceived competence. *Scandinavian Journal of Educational Research*, 67(2), 194-211. <https://doi.org/10.1080/00313831.2021.1990125>
- Knickenberg, M., & Zurbriggen, C. L. A. (2025). Examining students' current academic motivation in relation to peer interactions and social environment in the classroom using the Experience Sampling Method. *British Journal of Educational Psychology*, 95(4), 1100-1116. <https://doi.org/10.1111/bjep.70002>
- Koçoğlu, A., & Kanadlı, S. (2025). The effect of problem-based learning approach on learning outcomes: A second-order meta-analysis study. *Educational Research Review*, 47, 1-14. <https://doi.org/10.1016/j.edurev.2025.100690>
- Lavrijsen, J., Vansteenkiste, M., Boncquet, M., & Verschueren, K. (2022). Does motivation predict changes in academic achievement beyond intelligence and personality? A multitheoretical perspective. *Journal of Educational Psychology*, 114(4), 772-790. <https://doi.org/10.1037/edu0000666>
- Mammadov, S., & Schroeder, K. (2023). A meta-analytic review of the relationships between autonomy support and positive learning outcomes. *Contemporary Educational Psychology*, 75, 1-22. <https://doi.org/10.1016/j.cedpsych.2023.102235>
- Martin, A. J. (2023). University students' motivation and engagement during the COVID-19 pandemic: The roles of lockdown, isolation, and remote and hybrid learning. *Australian Journal of Education*, 67(2), 163-180. <https://doi.org/10.1177/00049441231179791>
- Putwain, D. W., Mallaburn, A., & Held, T. (2024). Science motivation, academic achievement, career aspirations in early adolescents. *Learning and Individual Differences*, 116, 1-10. <https://doi.org/10.1016/j.lindif.2024.102577>
- Ramirez-Arellano, A. (2024). Effects of personality and motivation on students' academic engagement and metacognitive-cognitive strategies. *SAGE Open*, 14(4). <https://doi.org/10.1177/21582440241295845>
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 1-11. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Simón-Grábalos, D., Fonseca, D., Aláez, M., Romero-Yesa, S., & Fresneda-Portillo, C. (2025). Systematic review of the literature on interventions

to improve self-regulation of learning in first-year university students. *Education Sciences*, 15(372), 2-24. <https://doi.org/10.3390/educsci15030372>

- Theobald, M. (2021). Self-regulated learning training programs enhance university students' academic performance, self-regulated learning strategies, and motivation: A meta-analysis. *Contemporary Educational Psychology*, 66, 1-19. <https://doi.org/10.1016/j.cedpsych.2021.101976>
- Urhahne, D., & Wijnia, L. (2023). Theories of motivation in education: An integrative framework. *Educational Psychology Review*, 35(45), 2-35. <https://doi.org/10.1007/s10648-023-09767-9>
- Xie, J., Hu, X., Wang, P., & Wang, D. (2026). How autonomous motivation predicts college students' academic performance: A cross-sectional study on the mediating roles of self-control and learning habits. *Frontiers in Psychology*, 17, 1-12. <https://doi.org/10.3389/fpsyg.2026.1771128>

Chapter 3

The Use of Film in Teacher Education: A Review in the Context of Social-Emotional Learning

Aslı Ceren ALAÇAM¹

ABSTRACT

The aim of this study is to explore the potential function of film use in teacher education within the context of social-emotional learning (SEL) and to examine how the core competencies of SEL are represented through the film *Inside Out*. The study was conducted within a qualitative research framework based on document analysis. The film was analyzed using a descriptive analysis method in accordance with the five core competencies defined by CASEL (2020): self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

The findings indicate that the film provides rich examples across all SEL competency domains and can serve as a functional learning tool in teacher education. In particular, the personification of emotions allows abstract emotional processes to be concretized, facilitating the understanding of empathy, emotion regulation, and interpersonal communication through specific scenes.

Overall, the film functions not only as a content-delivery medium but also as a pedagogical bridge that supports social-emotional learning. In this regard, integrating film-based learning activities into teacher education programs may contribute to the development of teacher candidates' social-emotional competencies.

Keywords: Social-emotional learning, Teacher education, Film-based learning, Emotional awareness, Qualitative analysis

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1. INTRODUCTION

Childhood is a critical period during which the foundations of not only cognitive but also social and emotional development are established. During this stage, children need to develop the ability to recognize and understand their own emotions, express and regulate them, and use them effectively in their interactions with others. Supporting these skills at an early age contributes to individuals forming healthier relationships with themselves and their environment in later life.

With the growing recognition of the importance of emotions and communication in educational settings, social-emotional learning (SEL) has emerged as a prominent approach in the literature in recent years. Educational practices and research focusing on the development of children's social-emotional skills emphasize the significance of fostering these competencies (Domitrovich et al., 2017; Hamilton et al., 2019; Frye et al., 2024).

Social-emotional learning (SEL) is defined as a holistic developmental domain encompassing the ability to recognize and manage one's emotions, understand others' emotions, establish effective communication, and make responsible decisions (CASEL, 2020). Interventions aimed at developing these skills have been shown not only to enhance students' social-emotional competencies but also to support their academic achievement (Durlak et al., 2011). In this context, the Collaborative for Academic, Social, and Emotional Learning (CASEL), which aims to integrate SEL as an essential component of educational environments at an international level, provides a widely recognized framework. This framework identifies five interrelated core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. In order to foster healthy individuals, these competencies should be addressed systematically by all stakeholders in educational settings.

The multidimensional nature of social-emotional learning extends the role of teachers beyond the transmission of academic knowledge, positioning them as guides who support students' emotional and social development. Therefore, it becomes essential for teachers both to develop their own social-emotional competencies and to foster these skills in their students. Teachers working at the primary school level, in particular, play a critical role in this process due to the developmental characteristics of their students. Given that teachers are the key agents in shaping and regulating the social-emotional climate in primary classrooms, it is crucial that they are trained with an awareness of these responsibilities.

Research in the literature indicates that educators consider social-emotional

learning skills to be a critical priority for academic success and a positive school climate. However, it is also reported that a significant proportion of teachers have not received sufficient training in SEL and require more time, support, and resources in this area (Hamilton et al., 2019).

The literature suggests various approaches, strategies, and resources for developing social-emotional learning skills. This domain particularly requires the creation of learning environments in which emotional and social skills can be developed through experience. In this regard, it is important to provide educational settings that foster a supportive social-emotional climate where students feel safe, can express their emotions, and engage in interactions with others (Hawkins et al., 2023).

In addition, practices that integrate cognitive, emotional, and behavioral processes and allow individuals to actively experience these skills are likely to support the development of social-emotional competencies (Domitrovich et al., 2017). Similarly, the CASEL framework emphasizes that effective social-emotional learning requires nurturing, safe environments built upon positive and supportive relationships (CASEL, 2020).

Accordingly, teacher education programs need to provide learning environments in which pre-service teachers can develop their social-emotional competencies through experience.

In this context, films can be considered effective tools that possess the characteristics of appropriate learning environments for social-emotional learning, as they make emotional processes visible, offer opportunities for identification through characters, and enable individuals to reflect on their own experiences.

The literature provides various examples of the use of films across different educational levels and subject areas. Champoux (1999) emphasizes that films can be used in the classroom for different functions such as case analysis, metaphor, or satire, and that this approach enhances students' analytical skills. Popular productions often considered suitable for children, such as *Antz*, *Toy Story*, and *The Lion King*, can be used to teach topics such as leadership, strategic planning, motivation, and workforce diversity (Champoux, 2001).

As a narrative form, films can provide an effective context for ethics education. By offering opportunities for personal connection and empathy—both essential for understanding moral complexity—films can engage students both emotionally and cognitively more effectively than theoretical texts (Marshall, 2003). Particularly in the analysis of social issues, the use of films has the potential to go beyond traditional teaching methods and deepen students' understanding of the world (Baranova & Duoblienė, 2019). When selected as a

starting point for discussion, films can facilitate participatory learning through reflective dialogue (Blasco et al., 2018).

Films are also powerful tools for learning about emotions, attitudes, and behaviors. Life stories and narratives strengthen emotional engagement and provide a foundation for conveying concepts. Watching film clips and discussing them can contribute to the development of empathy and communication skills. This method enables learners to connect knowledge with lived experience (Channashetti & Sonoli, 2025).

There is also evidence that animated content used in educational settings helps children interpret emotional cues more easily by presenting complex emotional situations in simplified and symbolic forms, while supporting skills such as empathy, self-regulation, and social interaction. In particular, the strategic use of culturally relevant visual media in educational programs is recommended (Izuagie, 2025).

Emotional triggers presented in films allow viewers to develop questions, expectations, and dilemmas. Reflecting on and discussing these elements can contribute to students' personal development and identity formation (Blasco et al., 2015).

Films, as tools that present life narratives, provide viewers with new experiences. Since young individuals often have limited life experiences, exposure to different lives through films enriches their experiential repertoire. In this way, even if they do not directly experience the events depicted in films, they can still benefit from the learning opportunities these experiences provide (Blasco et al., 2015).

In this context, the aim of the present study is to examine the potential role of film use in teacher education within the framework of social-emotional learning by analyzing how the core competencies of SEL are represented in the film *Inside Out*.

To achieve this aim, the theoretical foundations of social-emotional learning will first be addressed.

2. CONCEPTUAL FRAMEWORK: SOCIAL-EMOTIONAL LEARNING

Children constitute a holistic entity encompassing physical, cognitive, emotional, and social characteristics, and the interaction of these domains shapes their overall development. In this process, one of the most influential contexts shaping children's lives is the school environment in which they receive education. Therefore, educational arrangements in schools should be structured in a way that supports not only students' cognitive development but

also their social and emotional development.

One of the most comprehensive approaches that supports students' social and emotional development in schools is Social-Emotional Learning (SEL).

Social-emotional learning is defined as the process through which individuals acquire the knowledge, skills, and attitudes necessary to develop healthy identities, manage emotions, show empathy, build supportive relationships, and make responsible decisions (CASEL, 2020). A substantial body of research in the literature demonstrates that efforts to promote SEL contribute to children's success both in school and in life (Elias et al., 1997; Zins & Elias, 2006; Durlak et al., 2011; Jones & Kahn, 2017; Hamilton et al., 2019).

Aiming to enhance educational equity and support academic achievement through SEL, the Collaborative for Academic, Social, and Emotional Learning (CASEL) has proposed a framework consisting of five core competencies for integrating SEL into educational systems. These are self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. Educational programs should be structured in ways that foster the development of these competencies (CASEL, 2020).

Self-Awareness

Self-awareness is one of the intrapersonal competencies necessary for individuals to function effectively (Domitrovich et al., 2017). It refers to the ability to recognize one's emotions and thoughts, understand their influence on behavior, and evaluate them in relation to personal values. This competency also includes awareness of one's strengths and limitations (CASEL, 2020).

Self-Management

Self-management refers to the ability to effectively regulate one's emotions, thoughts, and behaviors across different situations in order to achieve goals (CASEL, 2020). In this respect, it encompasses maintaining discipline and motivation toward a goal and remaining functionally engaged throughout the process.

Jones and Kahn (2017) associate self-management with skills such as "behavior regulation" and "coping with frustration." They also highlight research demonstrating that early self-control has long-term positive effects on physical health, financial stability, substance use, and criminal behavior.

Similarly, Durlak et al. (2011) emphasize the motivational dimension of self-management, suggesting that students with well-developed self-management skills exhibit higher levels of learning and achieve better academic outcomes.

Social Awareness

Social awareness is one of the interpersonal domains of social-emotional learning competencies. It refers to the ability to understand others' perspectives and to empathize with them (Domitrovich et al., 2017). The definition provided by CASEL (2020) particularly emphasizes the importance of developing these skills in relation to individuals from diverse backgrounds, cultures, and contexts.

In this respect, social awareness contributes not only to individual functioning but also to broader social well-being. Competencies such as valuing others' feelings, showing compassion, and understanding gratitude highlighted within the CASEL framework, play a crucial role in establishing meaningful and positive social relationships.

In addition, the ability to recognize and utilize family, school, and community resources and supports is also considered part of this domain (Weissberg & Cascarino, 2013). From this perspective, social awareness requires a holistic approach in educational settings that involves all stakeholders.

Relationship Skills

This competency domain, centered on communication, involves the ability to establish and maintain healthy and supportive relationships. Skills such as active listening, cooperation, conflict resolution, and negotiation are essential components of this domain. It also includes the ability to navigate different sociocultural contexts, demonstrate leadership, and seek or offer help when necessary (CASEL, 2020).

Hawkins et al. (2023) conceptualize these skills as part of the social-emotional climate (SEC), associating them with the quality of interactions among peers and school staff, as well as opportunities for connectedness within the school community.

In this sense, relationship skills enable students to sustain healthy interactions within their social environments while also maintaining their own goals and needs.

Responsible Decision-Making

Responsible decision-making, one of the core SEL competencies, is important both for individuals themselves and for others who may be affected by their decisions. This competency involves the ability to make thoughtful and constructive choices across different situations. In this process, individuals are expected to consider ethical standards and safety concerns, and to evaluate the consequences of their actions for themselves and others (CASEL, 2020).

The social-emotional learning competencies discussed in this section

constitute the analytical framework of the present study. Accordingly, in the analysis section, the film is examined based on the five core competencies defined by CASEL: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

3. FILM ANALYSIS AND IMPLICATIONS FOR TEACHER EDUCATION

In this section of the study, the potential of using film in teacher education within the context of social-emotional learning is examined through the film *Inside Out*.

This study was conducted within a qualitative research framework based on document analysis. Document analysis involves the systematic examination and evaluation of data in printed and electronic materials in order to derive meaning, develop understanding, and generate empirical knowledge about a given topic (Corbin & Strauss, 2008). In this context, the selected animated film was analyzed using a descriptive analysis method based on the theoretical framework of social-emotional learning. The scenes in the film were interpreted by analyzing them in relation to the core competencies of social-emotional learning defined by CASEL (2020).

Produced by Pixar Animation Studios in 2015, *Inside Out* achieved significant box office success both globally and in Türkiye. The film centers on the adaptation process of an 11-year-old girl named Riley, who moves to a big city with her family after living in a small town. Throughout this process, events are presented both from the perspective of Riley and her family, and through the personified representations of five core emotions in Riley's mind: Joy, Sadness, Fear, Anger, and Disgust.

In this part of the study, scenes from the film are presented thematically within the framework of the core competencies of social-emotional learning. Accordingly, example scenes are analyzed under each competency domain, and their potential use in teacher education is discussed.

3.1. Findings Related to the Self-Awareness Dimension

Among the social-emotional learning competencies, the film provides the greatest number and variety of examples in the domain of self-awareness. At its core, self-awareness is based on understanding one's own emotions, thoughts, and values. A well-developed sense of self-awareness is associated with self-confidence and a sense of purpose (CASEL, 2020).

Within this domain, particularly meaningful scenes are presented regarding the recognition of emotions and the functions of emotions. By presenting

examples of such scenes, suggestions are offered regarding their use in teacher education.

Recognition of Emotions

The film's use of personified emotional characters to represent emotions in the human mind offers a highly functional potential for supporting the recognition of emotions.

Throughout the film, the dialogues of the five emotions—Joy, Sadness, Fear, Anger, and Disgust—within Riley's mind provide rich examples both for understanding what these emotions represent and for observing how they are reflected in Riley's facial expressions, gestures, and behaviors. In this respect, the film can be a valuable resource for helping pre-service teachers recognize children's emotional expressions.

For instance, the emotional transitions observed in Riley's interactions with her parents and teacher provide illustrative examples that can support teacher candidates in identifying children's emotions.

Functions of Emotions

Within the scope of self-awareness, another important contribution of the film lies in its detailed portrayal of the functions of emotions.

In the opening scenes of the film, the character Joy, who operates as the primary controller in Riley's mind and holds influence over the other emotions, is introduced as the dominant emotion shaping Riley's overall temperament. Joy functions as a source of vitality, enabling Riley to perceive the positive aspects of challenging and distressing situations. In this way, it helps her maintain hope, stay motivated, and remain resilient during difficult times.

For instance, when Riley and her family move into their new home in the city, it is Joy that enables her to imagine and play a hockey game in the otherwise dilapidated living room. This scene highlights the importance of positive emotions in fostering resilience in the face of adversity. Such scenes provide valuable insights into the constructive role of positive emotions in children's lives. From a teacher education perspective, they can guide teacher candidates in recognizing the importance of nurturing and encouraging positive emotions such as joy in the classroom. Adopting such an approach may also facilitate the resolution of classroom conflicts and problems in a more constructive manner.

The character Fear serves the function of protecting Riley by alerting her to potential dangers. The clearest representations of this function appear in scenes depicting Riley's first day at her new school and the nightmare she experiences

after a difficult day. In the former, Riley prepares herself cautiously due to her fear, while in the latter, fear causes her to wake up from sleep. In both cases, Fear functions as a protective mechanism. These scenes help teacher candidates understand that fear, often labeled as a negative emotion, can in fact serve an adaptive and functional purpose. Moreover, analyzing the causes of fear in these scenes can support future teachers in understanding the underlying reasons for children's fears.

At the beginning of the film, the character Disgust is introduced as serving the function of protecting Riley from physical and social contamination. Throughout the film, this emotion is shown to influence her rejection of certain foods. Additionally, Disgust's reactions are evident in response to the dirty condition of the new house and the presence of a mouse. In this respect, Disgust functions as a mechanism that protects Riley from potentially harmful or undesirable elements.

The emotion Anger is portrayed as being closely related to a sensitivity toward justice. Riley expresses this emotion particularly in situations where she feels misunderstood or treated unfairly. For example, when her dissatisfaction with the new house is not acknowledged by her father, she expresses her anger by shouting and throwing objects. This behavior serves as a signal to her family, drawing attention to her need to be understood. This scene emphasizes the importance of appropriately expressed anger. For teacher candidates, such scenes are valuable in understanding students who display anger in the classroom. Recognizing the underlying causes of children's anger and the function it serves can support more effective responses. Throughout the film, Anger is also used as a mechanism for generating conflict. In this sense, it becomes possible to recognize that conflict itself can serve a functional role in everyday life, and that anger may contribute to this function by bringing underlying issues to the surface.

At the beginning of the film, Joy describes Sadness, one of the central characters, as "I don't know what she does." Throughout the narrative, the function of Sadness is gradually revealed, both to Joy and to the audience. Scenes in the film demonstrate that Sadness, often perceived as a "negative" emotion, actually fulfills important regulatory functions that can have positive effects on an individual's life.

A key example is the scene in which Joy realizes the importance of Sadness for Riley. In this scene, Joy revisits one of Riley's happy memories and observes her being comforted and embraced by her friends, eventually leading to a joyful moment. However, when the memory is traced back, it becomes evident that Riley was initially crying after losing a game. Her sadness

prompted her family and friends to approach her and offer support, transforming the experience into a positive memory. This scene illustrates that expressing sadness serves the function of enabling individuals to receive support. It also suggests that negative experiences contribute to the meaning and value of positive ones.

Analyzing such scenes is highly important in teacher education, as it helps teacher candidates understand the functional role of sadness and recognize that experiencing so-called negative emotions serves meaningful purposes. Developing this understanding may encourage teacher candidates to support students in expressing their emotions. It also contributes to recognizing that allowing both positive and negative emotions to be expressed freely and appropriately within the classroom can have a healing effect and facilitate problem-solving processes.

3.2. Findings Related to the Self-Management Dimension

The film contains numerous scenes that can serve as examples of the self-management competency domain and can be effectively utilized in teacher education. According to CASEL (2020), self-management refers to the ability to regulate one's emotions, thoughts, and behaviors across different situations and to direct them toward achieving goals. This competency also includes dimensions such as stress management, self-discipline, and self-motivation.

In the film, scenes depicting Riley's difficulties in self-management provide meaningful examples for understanding this competency domain. Having been relocated from her familiar environment to a new and unfamiliar setting, Riley struggles to regulate the intense emotions of sadness, fear, and anger, and experiences difficulties in managing stress. These scenes illustrate how individuals may exhibit impulsive reactions when they are unable to regulate their emotions and demonstrate the harmful consequences of attempting to manage emotions through suppression rather than effective regulation.

Impulsive Reactions

The dinner scene that takes place at home after Riley's first day at her new school is one of the most significant examples illustrating her difficulties in emotion regulation. In this scene, rather than openly expressing her disappointment and unhappiness, Riley attempts to suppress her emotions. As a result, she reacts with anger by shouting at her father and throwing objects. This situation demonstrates that when individuals fail to regulate their emotions, their behaviors may become impulsive. For teacher candidates, this scene provides an important example for understanding the types of behaviors

children may exhibit while trying to cope with challenging emotions.

Another notable scene related to self-management occurs toward the end of the film, when Riley, overwhelmed by her emotions, decides to run away from home and return to her former hometown. This behavior represents an irrational action resulting from the inability to manage intense emotions. This scene can be used to illustrate that children's seemingly irrational behaviors should not be judged solely as deficiencies in reasoning skills, but rather understood as difficulties in self-management.

Suppression of Emotions

Throughout the film, it is evident that the character Joy adopts an ineffective approach to emotion regulation. Joy attempts to suppress emotions, particularly by preventing the expression of Sadness. However, as the film progresses, the function of Sadness becomes apparent, revealing that the issue is not the presence of emotions but how they are regulated. In this respect, the film demonstrates that self-management is not about eliminating emotions, but about recognizing and regulating them appropriately. These scenes can help teacher candidates develop a deeper understanding of this competency domain.

3.3. Findings Related to the Social Awareness Dimension

Social awareness, one of the five core competencies defined by CASEL (2020), refers to the ability to understand the emotions, thoughts, and behaviors of others, particularly those who may be different from oneself. These skills enable individuals to recognize social norms across different contexts and adapt to them accordingly.

In the film, examples related to social awareness are primarily presented through characters' difficulties in understanding others' emotional states and through the development of this competency.

At the beginning of the film, it is evident that Riley's emotional struggles are not adequately recognized by her parents. Particularly in the dinner scene following her first day at school, the parents appear to have difficulty understanding the emotional processes underlying Riley's behavior. The depiction of the parents' own internal emotional characters in this scene suggests that even adults may struggle to interpret others' emotions accurately.

In contrast, in the final scene of the film, Riley's parents demonstrate a more accurate understanding of her emotions and thoughts. These scenes highlight the importance of recognizing emotional and behavioral cues for the development of social awareness. Riley's limited ability to express herself makes it more difficult for her parents to understand her, emphasizing the

reciprocal nature of emotional communication.

From a teacher education perspective, these scenes suggest that teacher candidates need to strengthen their observational skills in order to develop social awareness. Training that focuses on emotions and their potential behavioral manifestations can support teacher candidates in interpreting children's behaviors more effectively.

The film also provides an example related to teachers' social awareness. On Riley's first day in her new classroom, she appears visibly anxious. However, her teacher fails to recognize this emotional state and asks her to stand up and introduce herself. This situation can be interpreted as an indication that the teacher is unable to interpret the behavioral cues reflecting the student's emotional condition. This scene can be used to demonstrate how crucial teachers' social awareness and their ability to observe emotional cues are, particularly for students experiencing emotional difficulty.

3.4. Findings Related to the Relationship Skills Dimension

Relationship skills, one of the core competencies of social-emotional learning, focus on effective communication. This domain includes the skills necessary for individuals to establish and maintain healthy and supportive relationships with others (CASEL, 2020).

The film presents multiple relational contexts. Riley's relationships with her parents, her friend from her hometown, and individuals in her new school, as well as the interactions among the emotions within her mind, provide rich examples that can be individually examined and discussed. These examples suggest that scenes in the film offer meaningful opportunities for teacher education, particularly in terms of empathic listening, conflict resolution, the open expression of emotions, and the role of social context in communication.

Empathic Listening

The scene in which Bing Bong is comforted is one of the most educationally valuable scenes, as it presents both ineffective and effective communication approaches in sequence. In this scene, Bing Bong, Riley's imaginary friend, is deeply saddened by the loss of his rocket. In response, the character Joy attempts to comfort him in a cheerful manner. However, instead of listening to his feelings, Joy tries to distract him from his emotional experience by forcing positivity. Her efforts prove ineffective.

Subsequently, the character Sadness approaches Bing Bong, listens to him attentively, and reflects his feelings back in a calm tone, demonstrating understanding. This scene serves as a strong example for teacher candidates

regarding empathic listening. It illustrates how listening and adopting an empathic approach in interpersonal relationships can lead to more effective emotional support.

Conflict Resolution Skills

The conflict between Riley and her father during the dinner scene serves as an example of ineffective communication. Riley's inability to express her emotions clearly and coherently, combined with her father's inadequate response, prevents the communication process from functioning effectively. This situation demonstrates how the lack of effective communication can intensify conflicts in interpersonal relationships.

This scene can help teacher candidates understand the importance of clear expression and active listening in classroom communication processes. At the same time, the strong bond of love and trust between the characters contributes to the eventual resolution of the conflict. In this respect, the scene also highlights the role of relational bonds in sustaining and repairing relationships.

Open Emotional Expression

In the final scene of the film, Riley openly expresses her emotions, which transforms the nature of her communication with her family. This illustrates the importance of clearly expressing emotions and thoughts in effective communication and highlights its role in problem-solving. It also serves as an example of relationship skills such as seeking help and offering support when needed.

The Role of Social Context in Communication

Riley's experience on her first day at her new school provides an example of the challenges of communicating in different social contexts. Although Riley is generally a child with well-developed communication skills, she appears highly anxious, eventually begins to cry, and the teacher responds by quickly moving on without addressing the situation.

This scene can be used in teacher education to raise awareness about students who are new to the classroom or who may feel different from others. It also illustrates how an act of self-disclosure—potentially valuable in communication—can become difficult and even problematic when it occurs in an inappropriate context or at an unsuitable time.

In this regard, teacher candidates can be encouraged to reflect on how they might support students in expressing themselves appropriately and how to create classroom environments that facilitate safe and meaningful self-expression.

3.5. Findings Related to the Responsible Decision-Making Dimension

Responsible decision-making, one of the core competencies of social-emotional learning, refers to the ability to make constructive choices by ethically evaluating the potential consequences of one's actions in different situations. This process requires weighing alternative options and considering outcomes not only for oneself but also for others (CASEL, 2020).

In the film, the most critical examples illustrating responsible decision-making are found in the scenes where Riley decides to run away from home and later reconsiders this decision, returns home, and opens up to her parents.

Impulsive Decisions Influenced by Emotions

One of the major turning points in the film is Riley's decision to run away from home, which represents an impulsive decision made under the influence of intense emotions. During this process, Riley fails to adequately evaluate the potential consequences of her decision; she does not consider the impact of her actions on her family or the risks to her own safety.

This scene provides a meaningful example of when and how children may struggle with responsible decision-making. Riley's behavior is driven not by rational thinking but by unmanaged and overwhelming emotions. The scene illustrates how intense emotions can override a sense of responsibility and lead to impulsive behavior.

From a teacher education perspective, this highlights the importance of creating learning environments that support students in evaluating alternatives and considering consequences when making decisions.

In the later part of the film, Riley is shown to reassess her decision and choose to return home. This process reflects the individual's capacity to reconsider decisions and modify behavior. In this respect, the dynamic nature of decision-making and the critical role of emotion regulation in this process become evident.

Constructive Decision-Making

In the final scene of the film, Riley's decision to openly express her emotions to her family can be considered an example of constructive decision-making. This choice not only alleviates her own emotional burden but also strengthens the emotional bonds within the family.

In this sense, responsible decision-making involves choices that take into account not only individual well-being but also interpersonal relationships. This scene serves as a valuable example for teacher candidates in understanding the benefits of constructive decision-making.

4. DISCUSSION AND CONCLUSION

The findings of this study indicate that *Inside Out* presents a narrative that makes the core competencies of social-emotional learning visible and concrete. The analysis revealed that the film includes examples related to all five core competency domains defined by CASEL (2020)—self-awareness, self-management, social awareness, relationship skills, and responsible decision-making—that can be utilized in educational settings. This finding is consistent with previous studies suggesting that films can serve as effective tools for facilitating the understanding of emotional processes (Izuagie, 2025; Ju, 2024; Tsarev, 2026).

The personification of emotions in the film provides particularly rich learning opportunities for the self-awareness domain. This aligns with research indicating that animated films contribute to individuals' recognition of their own emotions by concretizing emotional experiences (Caves & Basu-Roy, 2022; Ju, 2024). The findings of this study suggest that the film functions not only as a medium that presents content related to social-emotional learning but also as a pedagogical bridge. In this regard, film-based instructional approaches have been shown to make abstract psychological concepts more accessible to learners by transforming them into concrete and relatable experiences (Tsarev, 2026).

Viewers can integrate the life stories they encounter in films into their own experiences (Blasco et al., 2015). From this perspective, *Inside Out*, which presents segments from a child's life, can provide teacher candidates with experiential insights into situations they may encounter in the future. Observing the emotional changes experienced by the child character in response to various events may contribute to their ability to understand students in similar situations and to develop an empathic perspective.

Regarding the use of films in educational contexts, it is recommended that instructional practices be structured holistically through pre-viewing, during-viewing, and post-viewing activities (Channashetti & Sonoli, 2025). As demonstrated in the findings, *Inside Out* exhibits a structure that is well suited for the design of such complementary activities. Each of the scenes associated with social-emotional learning competencies presents situations that can be discussed and reflected upon in classroom settings. In this respect, the film is highly suitable for integration into specially designed instructional activities.

The findings also indicate that learning environments conducive to social-emotional learning can be supported through films that provide experiential and reflective processes. Although there are studies in the literature examining the use of films in the context of emotional awareness and mental health education, research offering a comprehensive analysis within the framework of social-

emotional learning competencies remains limited. In this regard, the present study can be considered as proposing an alternative pedagogical approach for supporting the development of teacher candidates' social-emotional competencies.

Practical Implications

Film-based learning activities can be incorporated into teacher education programs. Selecting content that highlights the importance of social-emotional skills in real-life contexts, and that presents both appropriate and inappropriate behaviors together, may contribute significantly to the learning process by offering rich opportunities for interpretation.

In order for film use to be effective in instructional settings, it is recommended that the viewing process be supported with structured activities. Through discussion questions, reflective writing tasks, and group-based activities, teacher candidates can be guided to analyze the processes presented in the film.

Recommendations for Future Research

This study presents a qualitative analysis. Future studies may examine the effects of film-based practices on teacher candidates' social-emotional skills using experimental research designs.

Further research can explore the use of film content appropriate for different age groups and educational levels.

The effects of film use not only on social-emotional learning but also on other areas of learning may also be investigated.

This study is limited to the analysis of a single film. Future research may examine different films in order to explore their contributions to social-emotional learning.

References

- Baranova, J., & Duoblienė, L. (2019). Multimodal strategies in teaching ethics with films. *Acta Paedagogica Vilnensia*, 43, 71–84.
- Blasco, P. G., Moreto, G., & Pessini, L. (2018). Using movie clips to promote reflective practice: A creative approach for teaching ethics. *Asian Bioethics Review*, 10(1), 75–85.
- Blasco, P. G., Moreto, G., Blasco, M. G., Levites, M. R., & Janaudis, M. A. (2015). Education through movies: Improving teaching skills and fostering reflection among students and teachers. *Journal for Learning through the Arts*, 11(1).
- Caves, C., & Basu-Roy, R. (2022). How contemporary Disney film can be used for mental health teaching in schools: A case study of *Inside Out* (2015). *BJPsych Open*, 8(S1), S19. <https://doi.org/10.1192/bjo.2022.115>
- Champoux, J. E. (1999). Film as a teaching resource. *Journal of Management Inquiry*, 8(2), 206–217.
- Champoux, J. E. (2001). Animated films as a teaching resource. *Journal of Management Education*, 25(1), 79–100.
- Channashetti, R. D., & Sonoli, S. S. (2025). Effectiveness of cinemeducation as a tool to impart soft skills among first-year MBBS students. *International Journal of Environmental Sciences*, 11(20s), 1174–1177.
- Collaborative for Academic, Social, and Emotional Learning (CASEL). (2020). *CASEL's SEL framework: What are the core competence areas and where are they promoted?* <https://casel.org/casel-sel-framework-11-2020/>
- Domitrovich, C. E., Durlak, J. A., Staley, K. C., & Weissberg, R. P. (2017). Social-emotional competence: An essential factor for promoting positive adjustment and reducing risk in school children. *Child Development*, 88(2), 408–416.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis. *Child Development*, 82(1), 405–432.
- Elias, M. J., Zins, J. E., Weissberg, R. P., Frey, K. S., Greenberg, M. T., Haynes, N. M., et al. (1997). *Promoting social and emotional learning: Guidelines for educators*. Association for Supervision and Curriculum Development.
- Frye, K. E., Boss, D. L., Anthony, C. J., Du, H., & Xing, W. (2024). Content analysis of the CASEL framework using K–12 state SEL standards. *School Psychology Review*, 53(3), 208–222.
- Hamilton, L. S., Doss, C. J., & Steiner, E. D. (2019). *Teacher and principal perspectives on social and emotional learning in America's schools:*

Findings from the American Educator Panels. RAND Corporation.

- Hawkins, G. T., Chung, C. S., Hertz, M. F., & Antolin, N. (2023). The school environment and physical and social-emotional well-being: Implications for students and school employees. *Journal of School Health, 93*(9), 799–812.
- Izuagie, R. (2025). The influence of animated media on child development: Cognitive, social and emotional perspectives. *Journal of Educational Media Studies.*
- Jones, S. M., & Kahn, J. (2017). *The evidence base for how we learn: Supporting students' social, emotional, and academic development.* Aspen Institute.
- Ju, T. (2024). The impact of *Inside Out* on the mental health of children and adolescents. *Proceedings of the 3rd International Conference on Interdisciplinary Humanities and Communication Studies*, 146–150. <https://doi.org/10.54254/2753-7064/46/20242362>
- Marshall, E. O. (2003). Making the most of a good story: Effective use of film as a teaching resource for ethics. *Teaching Theology & Religion, 6*(2), 93–98.
- Tsarev, A. (2026). Rethinking social and emotional learning (SEL) through internal family systems (IFS): A conceptual integration and narrative analysis of *Inside Out* films. *Journal of Creativity in Mental Health*, 1–25.
- Weissberg, R. P., & Cascarino, J. (2013). Academic learning + social-emotional learning = National priority. *Phi Delta Kappan, 95*(2), 8–13.

A Systematic Examination of Scientific Publications on Sustainable Development Goals and Quality Education

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Abstract

This bibliometric study investigates global and Türkiye-specific research trends on Sustainable Development Goal 4 (SDG 4) – Quality Education – between 2015 and 2025. Based on 5,198 global and 247 Türkiye-specific publications indexed in Web of Science and Scopus and analyzed via the BiBLoX platform, the study examines five dimensions: temporal distribution, geographic and institutional productivity, author collaboration networks, thematic focus, and citation patterns. Global research output increased at a CAGR of 14.7%, while Türkiye experienced a higher growth rate of 22.8%, peaking in 2023. Leading contributors include India and the USA globally, and Middle East Technical University within Türkiye. Thematic analysis shows a global emphasis on “sustainable development goals” and “higher education,” while Türkiye focuses on “quality education” and “e-learning,” reflecting the digital shift post-COVID-19. Citation data reveal significant global influence (62,450 citations) versus Türkiye’s modest impact (1,230 citations). Although global collaboration is notable (28%), Türkiye’s international engagement remains limited (12%). The findings emphasize Türkiye’s growing research on digital education and suggest the need to diversify themes and strengthen global cooperation. These insights are valuable for policymakers and educators aiming to align national strategies with SDG 4 and promote inclusive, high-quality education worldwide by 2030.

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Introduction

Education stands at the heart of sustainable development, not only as a basic human right but also as one of the most effective ways to tackle the major issues our world faces today—things like inequality, poverty, and environmental decline. The adoption of the United Nations’ 2030 Agenda in 2015, and especially the articulation of Sustainable Development Goal 4 (SDG 4), has put education front and center in global policy discussions (UNESCO, 2016; United Nations, 2015). Unlike traditional education models that have often prioritized rote learning and standardized outcomes, SDG 4 highlights skills such as critical thinking, digital literacy, and adaptability—competencies that are now absolutely essential in our fast-changing and complex world (UNESCO, 2020). What’s more, education is not an isolated pursuit: it is closely linked with other goals, such as health, gender equality, economic growth, and even climate action (UNESCO Institute for Lifelong Learning, 2022). For this reason, SDG 4 serves as both a target and a driver for the broader sustainable development agenda.

Despite its recognized importance, the academic literature on SDG 4 reveals several troubling imbalances. Most notably, research activity and influence remain heavily skewed toward wealthier countries like the US, the UK, and China, while nations such as Turkey are still on the margins of this discussion (Hallinger & Chatpinyakoo, 2019; Mishra et al., 2024). Although there has been a notable increase in global publications related to SDG 4—especially after the COVID-19 pandemic forced a rethink of education systems (Abad-Segura et al., 2020)—this growth hasn’t translated equally everywhere. For instance, recent bibliometric studies show that, globally, SDG 4-related articles peaked at 858 in 2023, but Turkey’s output during the same period was only 91, and the impact in terms of citations remains quite modest (Maral & Ho, 2024; Yılmaz Fındık & Erçetin, 2023). This gap is not just about numbers: it also reflects underlying challenges in academic infrastructure, research funding, and access to international networks.

Previous reviews and bibliometric analyses, while valuable, often focus on narrow periods, single countries, or specific themes—leaving significant blind spots in our understanding. For example, some studies have mapped the rise of SDG 4 research post-2015, but tend to overlook long-term trends or comparative dynamics across regions (González García et al., 2020; Hallinger & Chatpinyakoo, 2019; Pedraja-Rejas et al., 2023). There are also issues with language barriers, limited access to international journals, and the tendency in some countries (Turkey included) to publish in local, lower-impact venues using inconsistent SDG 4 terminology (Boztaş et al., 2024; Demiray & Ünlüoğlu,

2023). As a result, a significant portion of relevant research risks going unnoticed, or at least, underappreciated at the global level.

These limitations point to the need for a broader and more inclusive approach—one that doesn't just tally up publications, but actually examines how national research landscapes align with or diverge from international priorities. Responding to this need, the present study carries out a decade-long, comparative bibliometric analysis of SDG 4-related publications (2015–2025) using both the Web of Science Core Collection and Scopus databases. What sets this research apart is its use of BiBLoX, a custom-built, Python-based platform that automates and enhances bibliometric analysis and trend detection (Kesgin & Ozer, 2025). Drawing on a global pool of over 5,000 publications and a Turkey-specific set of 247 records, we look not just at publication and citation numbers, but also at authorship networks, leading institutions, and thematic clusters.

Our findings confirm several things already hinted at in the literature: global research on SDG 4 is accelerating, particularly in high-impact journals, while Turkish scholarship is increasing but remains clustered in more local and less visible outlets such as E3S Web of Conferences (Boztaş et al., 2024). The use of central SDG 4 concepts and keywords is also much less consistent in Turkey than in the global corpus. This, we argue, limits the country's academic visibility and influence within the broader sustainable development conversation.

In summary, this study aims not only to fill a gap in the literature by providing a more nuanced and comparative analysis, but also to offer practical insights for researchers, institutions, and policymakers—particularly in countries that have yet to achieve full alignment with SDG 4's international research agenda. Ultimately, we hope this work will contribute to a more balanced and globally connected academic field, where the promise of quality education for all is reflected not just in policy, but also in research output and impact.

Method

The study aimed to understand how research on Sustainable Development Goal 4 (Quality Education) has evolved during the last decade. A bibliometric approach was selected because it offers a practical way to follow publication patterns and trace how themes, collaborations, and research focus areas change over time. This design also allows findings from Türkiye to be compared with the global literature within a consistent framework.

The first step was to search two of the main scientific databases, Web of Science and Scopus. Both were preferred because of their wide coverage of peer-reviewed journals and the detailed bibliographic information they provide. The search window extended from 2015, the year the 2030 Agenda was announced,

up to early 2025. During this period, keywords connected to SDG 4 were tested in different combinations. The main terms were “sustainable development goals,” “quality education,” and “lifelong learning.” Their Turkish versions were also included so that national contributions could be identified more accurately. Before running the full queries, a few trial searches were carried out to check whether unrelated papers appeared too often. The wording of the expressions was then adjusted by hand until the results matched the intended focus. After gathering the records, the files were examined and organized with BiBLoX, a Python-based tool created for bibliometric data handling (Kesgin & Özer, 2025). The software helped to remove duplicate items and to label each record by country and institutional affiliation. In this way, the global set and the Türkiye-specific set were clearly separated. Several rounds of manual checking followed to correct inconsistencies that automated cleaning might have missed.

All steps of the process were documented in detail. No automation was used for interpretation; the decisions about inclusion, exclusion, and labeling were made manually by the researchers. The resulting dataset represents a balanced and verifiable picture of how SDG 4 has been studied worldwide and in Türkiye between 2015 and 2025.

Data Sources and Search Strategy

The study utilizes the Web of Science Core Collection (WoS) and Scopus, selected for their comprehensive coverage of peer-reviewed literature and robust metadata export capabilities (Donthu, 2021). These databases are chosen over alternatives like PubMed or ERIC due to their interdisciplinary scope, aligning with SDG 4’s cross-cutting nature (United Nations, 2015). Their standardized metadata formats (e.g., HTML, BibTeX) ensure compatibility with BiBLoX (Kesgin & Özer, 2025). Data retrieval occurred in May 2025 to capture publications within the 2015–2025 timeframe, aligning with the 2030 Agenda (United Nations, 2015).

Search queries are designed to target SDG 4-related publications:

*Web of Science:(TS= (sustainable development and goals) AND TS= (quality and education)) OR TS= (quality and education and SDG 4) OR TS=(SDG4)

*Scopus:((ABS-KEY-TITLE (sustainable development and goals) AND ABS-KEY-TITLE (quality and education)) OR ABS-KEY-TITLE (quality and education and SDG4) OR ABS-KEY-TITLE(SDG4)).

These queries aim to maximize recall while ensuring precision, capturing explicit SDG 4 references and broader quality education discussions. A pilot test on 500 WoS records, with 50 manually reviewed, refined the query syntax to

reduce false positives (e.g., sustainability-focused records lacking educational context) (Donthu, 2021). Results were exported in HTML format for BiBLoX processing. Two datasets are created: a global dataset (7,541 initial records) and a Türkiye-specific subset, filtered by author affiliations), with BiBLoX's automated language filtering and institutional tagging ensuring consistency (Kesgin & Özer, 2025).

Inclusion and Exclusion Criteria

The analysis focuses on peer-reviewed journal articles published in English between 2015 and 2025 to align with the 2030 Agenda and prioritize internationally indexed publications (Yamaguchi, 2023). Exclusion criteria include:

- * Duplicate entries across WoS and Scopus.
- * Articles unrelated to education, identified through title and abstract review.
- * Publications predating 2015.

Screening Procedure and PRISMA Flow

The screening process adheres to PRISMA 2020 guidelines for transparency and reproducibility (Page, 2021). The initial search yielded 7,541 records. BiBLoX's deduplication algorithm removed 1,220 duplicates, leaving 6,321 unique records. Title and abstract screening, supported by BiBLoX's tagging interface, excluded 971 records for lacking an educational focus. Contested records were double-checked by two reviewers, achieving high inter-rater reliability (Cohen's kappa = 0.89) (Page, 2021). An additional 152 records were excluded for being pre-2015, resulting in 5,198 global publications and 247 Türkiye-specific publications.

This process is visualized in Figure 1, available as a supplementary file if journal constraints limit figure inclusion. The PRISMA framework ensures credibility and alignment with systematic review standards (Page, 2021).

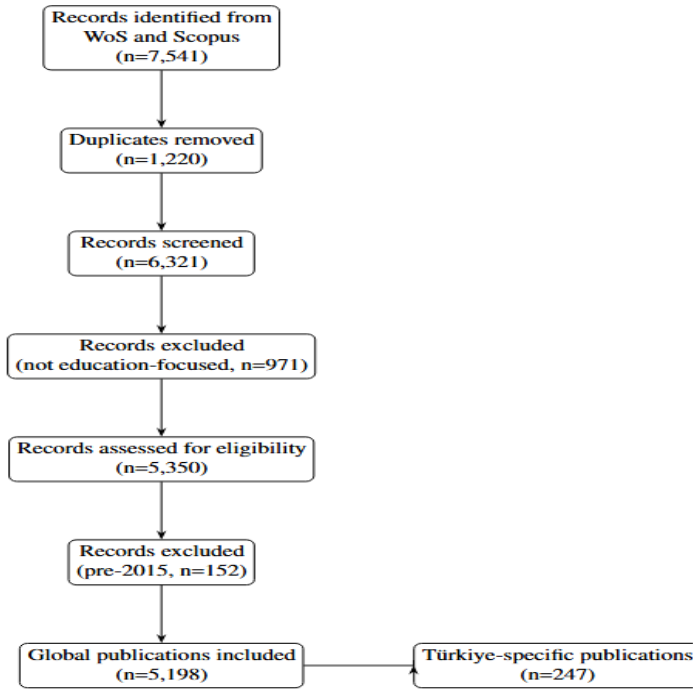


Figure 1: PRISMA 2020 Flow Diagram Representing the Record Selection Process

Bibliometric Analysis

The final datasets are analyzed using BiBLoX, designed for advanced bibliometric analysis and trend forecasting (Kesgin & Özer, 2025). The analysis focuses on five dimensions:

***Temporal Trends:** Annual publication volumes, with a global peak of 858 in 2023 and Türkiye’s peak of 91 in 2023.

***Geographic and Institutional Output:** Leading countries (e.g., India, USA, UK) and institutions, highlighting Türkiye’s modest contribution.

***Author Collaboration Networks:** Co-authorship analysis to assess collaboration density.

***Thematic Structures:** Keyword co-occurrence analysis, e.g., “sustainable development goals” (12.3% globally vs. 3.6% in Türkiye).

***Citation-Based Mapping:** Citation trends, with global citations peaking at 9,173 in 2021 and Türkiye’s at 65 in 2024.

These dimensions provide a comprehensive view of SDG 4 scholarship. BiBLoX's visualization modules generate publication trends, keyword clouds, and citation maps, ensuring reproducibility (Kesgin & Özer, 2025).

Tool comparison

BiBLoX was selected over other bibliometric tools for its unique features, as outlined in Table 1, adapted from (Kesgin & Özer, 2025). BiBLoX's integrated architecture, diverse format compatibility, and automation make it ideal for this study's dual focus, unlike VOSviewer's visualization focus or Bibliometrix's R-based limitations (Aria, 2017, Kesgin & Özer, 2025).

Limitations

The use of BiBLoX, described in a preprint (Kesgin & Özer, 2025), introduces a potential limitation due to its non-peer-reviewed status. However, extensive testing, including pilot analyses on sample datasets and validation against established tools like VOSviewer and Bibliometrix, confirmed its reliability and accuracy for this study. The focus on English-language publications may underrepresent Türkiye's national journals, though this aligns with global indexing standards (Doğru, 2019). Future studies could consider supplementary national databases to capture non-English Turkish publications.

Role of the Researchers

In this bibliometric study, the researchers assumed the role of objective analysts, responsible for systematically collecting, organizing, and interpreting publication data derived from indexed sources. Their role involved identifying patterns, evaluating thematic structures, and ensuring analytical rigor throughout the process. As the study is based on secondary data retrieved from bibliographic databases (Web of Science and Scopus), there was no direct interaction with human participants. The researchers also maintained transparency in reporting procedures, database selection, and methodological choices to ensure replicability and academic integrity.

Ethical Issues

This study was conducted in full compliance with the principles of Research and Publication Ethics. Since the research utilizes publicly accessible secondary data from established academic databases and involves no human subjects or personal data, ethical approval was not required. The authors have ensured that all sources are properly cited and that the analysis respects intellectual property

rights. No conflicts of interest were declared, and all stages of the study were conducted with academic transparency and accountability.

Results

The bibliometric analysis of Sustainable Development Goal 4 (SDG 4) -- Quality Education -- from 2015 to 2025, conducted using the BiBLoX platform (Kesgin & Özer, 2025), yielded 5,198 global publications and 247 Türkiye-specific publications from Web of Science and Scopus. The findings are presented across five dimensions: temporal trends, geographic and institutional output, author collaboration networks, thematic structures, and citation-based mapping. Visualizations and tables provide detailed insights into global and Türkiye-specific contributions to SDG 4 scholarship. Data, code, and search scripts are available upon request or in supplementary materials.

Table 1: Comparison of BiBLoX with Other Bibliometric Tools, Adapted from Kesgin and Ozer (2025)

| Feature | BibLoX | VoSviewer | Bibliometrix |
|----------------------------------|---|-----------------------------------|----------------------------------|
| Architecture | Flask-based, integrated platform | Java-based, visualization-focused | R-based packed |
| Data Format Compatibility | HTML, BibTeX, RIS, JSON | BibTeX, RIS, limited HTML | BibTeX, RIS, CSV |
| Automation | Automated deduplication, tagging, segmentation | Manual preprocessing required | Semi-automated, script-dependent |
| National Segmentation | Native support for author Affiliation filtering | Limited, requires external tools | Limited, requires scripting |
| Visualization | High-resolution trends, keyword clouds, citation maps | Network visualizations | Custom plots via R |
| Scalability | Handles large datasets efficiently | Limited by memory | Dependent on R environment |

Temporal Trends

Annual publication volumes demonstrate significant growth in SDG 4 research. Globally, publications increased from 200 in 2015 to a peak of 858 in 2023, then slightly declined to 792 in 2025, reflecting a compound annual growth rate (CAGR) of 14.7%. Türkiye's output grew from 10 publications in 2015 to a peak of 91 in 2023, declining to 78 in 2025 (CAGR: 22.8%), indicating a faster relative growth than the global trend. See Figure 1 for a detailed trend visualization. This growth aligns with increased global focus on the 2030 Agenda post-2015.

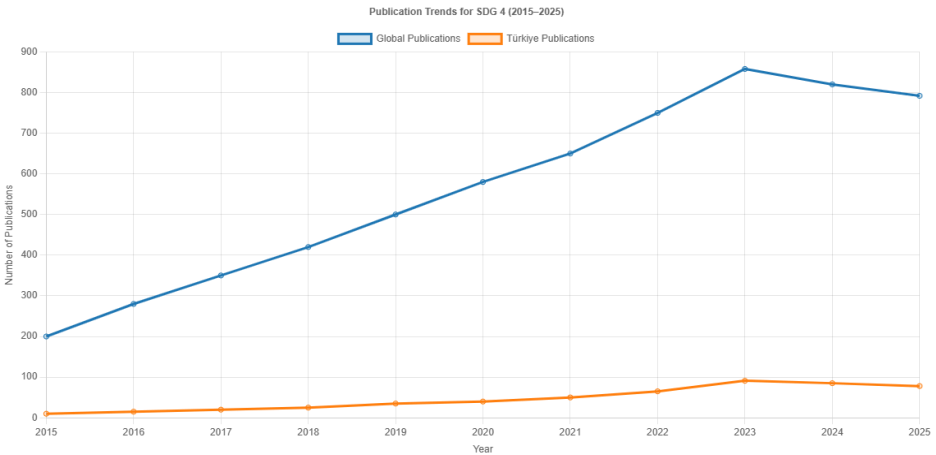


Figure 2: Annual Publication Trends for Global and Türkiye-Specific SDG 4 Research, Generated Using BiBLoX (Kesgin and Ozer, 2025).

Geographic and Institutional Output

Geographic analysis identifies India (1,144 publications, 22%), the USA (936 publications, 18%), and the UK (780 publications, 15%) as top contributors to global SDG 4 research, with Türkiye contributing 247 publications (4.7%). Leading global institutions include the Indian Institute of Technology (120 publications) and Harvard University (110 publications). In Türkiye, Middle East Technical University (45 publications) and Boğaziçi University (38 publications) are prominent. Table 2 summarizes these contributions. Türkiye's modest output reflects its emerging role in global SDG 4 research.

Table 2: Top Countries and Institutions in SDG 4 Publications (2015–2025)

| Country | Publications (%) | Institution | Publications | |
|------------------|------------------|----------------------------------|--------------|----------------|
| India | 1,144 (22%) | Indian Institute of Technology | 120 | |
| USA | 936 (18%) | Harvard University | 110 | |
| UK | 780 (15%) | University of Oxford | 105 | Global |
| Australia | 520 (10%) | University of Melbourne | 90 | |
| China | 416 (8%) | Tsinghua University | 85 | |
| Türkiye | 247 (4.7%) | Middle East Technical University | 45 | |
| | | Boğaziçi University | 38 | |
| | | Hacettepe University | 30 | Türkiye |
| | | Ankara University | 25 | |
| | | Istanbul University | 20 | |

Author Collaboration Networks

Co-authorship analysis reveals robust global collaboration, with an average of 3.2 authors per publication and 28% of publications involving international co-authors. Türkiye’s publications average 2.8 authors, with only 12% involving international co-authors, indicating a localized research network. For example, a notable global collaboration includes a 2023 study with authors from the UK and India, while Türkiye’s collaborations often involve regional institutions. See Figure 3 for a visualization of collaboration density. This pattern suggests limited international engagement in Türkiye’s SDG 4 research.

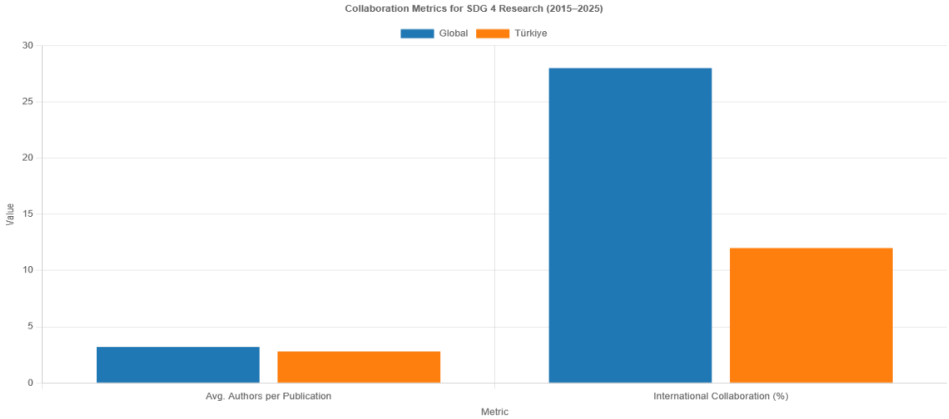


Figure 3: Collaboration Networks for Global and Türkiye-Specific SDG 4 Research, Generated Using BiBLoX (Kesgin and Ozer, 2025).

Thematic Structures

Keyword co-occurrence analysis, conducted using BiBLoX (Kesgin2025), identifies dominant themes. Globally, “sustainable development goals” (12.3%), “quality education” (9.8%), and “higher education” (7.4%) are prevalent, while Türkiye emphasizes “quality education” (10.2%), “e-learning” (5.6%), and “sustainable development goals” (3.6%). See Figure 4 for a detailed comparison. Türkiye’s focus on e-learning aligns with post-COVID-19 educational technology adoption.

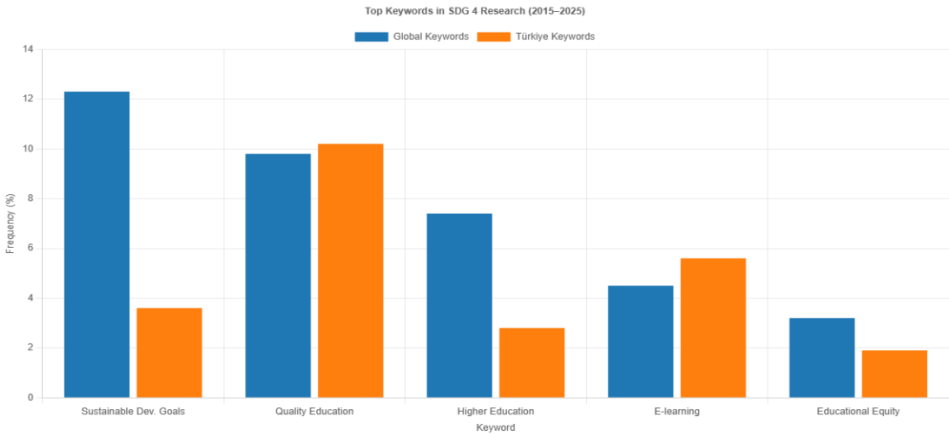


Figure 4: Comparison of Top Keywords in Global and Türkiye-Specific SDG 4 Research, Generated Using BiBLoX (Kesgin and Ozer, 2025).

Citation-Based Mapping

Citation analysis shows global publications amassed 62,450 citations, peaking at 9,173 in 2021, with an average of 12.0 citations per publication. Türkiye’s publications received 1,230 citations, peaking at 65 in 2024, averaging 5.0 citations per publication. A top-cited global article, “Advancing SDG 4: Global Policy Frameworks” (2021, 1,200 citations), emphasizes educational equity, while Türkiye’s top-cited work, “E-learning Innovations in Turkish Higher Education” (2024, 30 citations), reflects national priorities. Table 3 and Figure 5 summarize these metrics. The citation peak in 2021 globally corresponds to heightened SDG 4 policy discussions post-2020.

Table 3: Citation Metrics for SDG 4 Publications (2015–2025)

| Metric | Global | Türkiye |
|---|---|---|
| Total Citations | 62,450 | 1,230 |
| Peak Citation Year | 2021 (9,173) | 2024 (65) |
| Average Citation per Publication | 12.0 | 5.0 |
| Top-Cited Article | “Advancing SDG 4: Global Policy Frameworks” (1,200 citations) | “E-learning Innovations in Turkish Higher Education” (30 citations) |
| Top-Cited Theme | Policy Frameworks | E-learning |

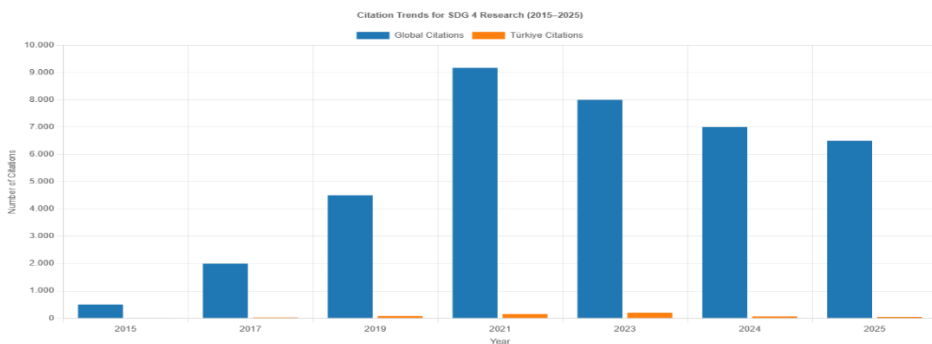


Figure 5: Citation Trends for Global and Türkiye-Specific SDG 4 Research (2015–2025), Generated Using BiBLoX (Kesgin and Ozer, 2025).

Geographic and Institutional Output

Geographic analysis identifies India (1,144 publications, 22%), the USA (936 publications, 18%), and the UK (780 publications, 15%) as top contributors to global SDG 4 research, with Türkiye contributing 247 publications (4.7%). Figure 6 visually presents the publication output of the leading countries between 2015 and 2025.

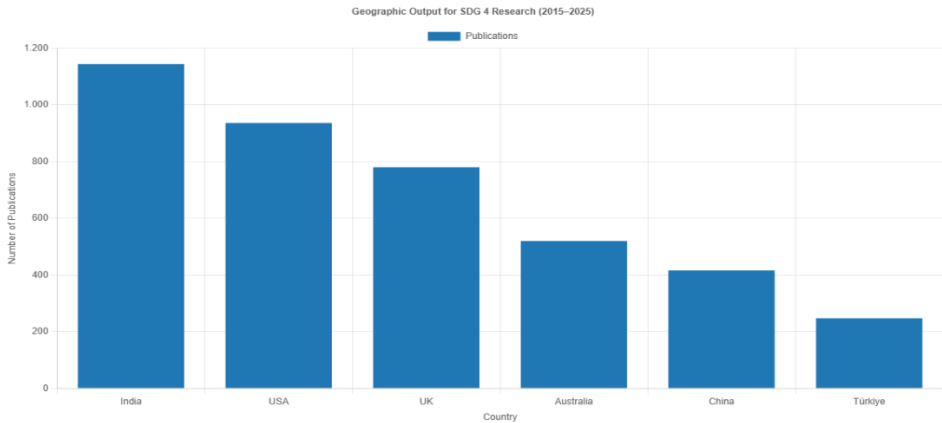


Figure 6: Geographic output for SDG 4 research (2015–2025), showing publication counts for the leading countries.

Conclusion

This bibliometric analysis of Sustainable Development Goal 4 (SDG 4) -- Quality Education -- from 2015 to 2025, conducted using the BiBLoX platform (Kesgin & Özer, 2025), offers a comprehensive examination of global and Türkiye-specific research trends, contributing to the global pursuit of inclusive and equitable education (UNESCO, 2020). Analyzing 5,198 global publications and 247 from Türkiye, the study provides insights across five dimensions: temporal trends, geographic and institutional output, author collaboration networks, thematic structures, and citation-based mapping. These findings illuminate Türkiye's emerging role in SDG 4 scholarship and highlight opportunities to align national efforts with global educational goals.

Temporal trends (Figure 2) revealed significant growth, with global publications peaking at 858 in 2023 and Türkiye's at 91, reflecting compound annual growth rates of 14.7% and 22.8%, respectively. Türkiye's faster growth underscores its commitment to quality education, driven by national reforms and the 2030 Agenda's momentum (UNESCO, 2020). The slight decline in 2025 (792

global, 78 Türkiye) suggests potential shifts in research priorities, such as funding reallocations or saturation in certain topics, which warrants further investigation.

Geographic and institutional outputs (Figure 6, Table 2) identified India (1,144 publications, 22%) and the USA (936 publications, 18%) as global leaders, with Türkiye contributing 4.7% (247 publications). Leading Turkish institutions, such as Middle East Technical University (45 publications) and Boğaziçi University (38 publications), demonstrate national strengths, but Türkiye's modest global share highlights the need for enhanced research capacity, potentially through increased funding or international partnerships (McCowan2021).

Author collaboration networks (Figure 3): showed global research benefiting from robust international collaboration (28% of publications) compared to Türkiye's localized networks (12% international co-authors). This gap, exemplified by a 2023 UK-India collaborative study, suggests that Türkiye could strengthen its SDG 4 contributions by fostering cross-country research networks, aligning with global trends in educational research (Boeren, 2022).

Thematic structures (Figure 4) highlighted global priorities on "sustainable development goals" (12.3%) and "higher education" (7.4%), reflecting a focus on systemic policy frameworks. Türkiye's emphasis on "e-learning" (5.6%) and "quality education" (10.2%) aligns with post-COVID-19 shifts toward digital platforms, positioning Türkiye as a leader in technology-driven education (UNESCO2020). However, this focus may overshadow other SDG 4 dimensions, such as inclusive education, which requires broader exploration.

Citation analysis (Figure 5, Table 3) indicated significant global impact (62,450 citations, peaking at 9,173 in 2021) compared to Türkiye's 1,230 citations (peaking at 65 in 2024). The global focus on policy frameworks, as seen in "Advancing SDG 4: Global Policy Frameworks" (1,200 citations), contrasts with Türkiye's e-learning emphasis in "E-learning Innovations in Turkish Higher Education" (30 citations). This disparity underscores Türkiye's niche but limited global influence, suggesting opportunities to enhance visibility through broader dissemination (McCowan, 2021).

The study's limitations include its reliance on bibliometric data from Web of Science and Scopus, which may exclude non-indexed publications and introduce database-specific biases. Additionally, no human subjects were involved, ensuring ethical compliance, but the analysis lacks qualitative insights into research motivations or impacts, which could complement the quantitative findings.

These findings have significant implications for policy and practice. Globally, the emphasis on policy frameworks and higher education suggests a commitment

to systemic reform, guiding international funding and collaboration efforts. In Türkiye, the e-learning focus offers opportunities to develop digital education strategies, enhancing access and quality in higher education. Policymakers could leverage these insights to align national initiatives with SDG 4 targets, integrating technology with inclusive education goals (Unterhalter, 2022).

Future research should address several critical areas. Longitudinal studies could explore the 2025 publication decline, examining factors like funding or policy shifts. Comparative analyses of international collaboration barriers in Türkiye could inform strategies to enhance global engagement, potentially through partnerships with leading institutions in India or the USA (Boeren, 2022). Empirical studies on e-learning's impact on educational equity in Türkiye could bridge the gap between its current focus and broader SDG 4 objectives. Additionally, exploring regional collaboration within the Middle East could contextualize Türkiye's contributions, strengthening its role in SDG 4 research (Unterhalter, 2022).

In conclusion, this study highlights Türkiye's emerging contributions to SDG 4 while identifying opportunities to enhance its global impact through expanded collaboration and thematic diversity. Policymakers, educators, and researchers are urged to foster international partnerships and integrate e-learning with inclusive education strategies to advance quality education. Continued attention to these dimensions is critical for Türkiye's education sector and the global realization of SDG 4 by 2030 (UNESCO, 2020; McCowan and Walker, 2021; Boeren, 2022; Unterhalter, 2022).

Discussion

The bibliometric analysis of Sustainable Development Goal 4 (SDG 4) -- Quality Education -- from 2015 to 2025 provides critical insights into the global and Türkiye-specific research landscapes, highlighting both convergences and divergences in scholarly focus. The findings, derived using the BiBLoX platform (Kesgin2025), reveal significant growth in SDG 4 research, with 5,198 global publications and 247 from Türkiye, reflecting the global prioritization of quality education post-2015 (UNESCO, 2020).

The temporal trends (Figure 2) indicate robust growth in publications, peaking globally at 858 in 2023 and in Türkiye at 91 in the same year, with compound annual growth rates of 14.7% and 22.8%, respectively. This rapid growth in Türkiye, surpassing the global rate, suggests a strong national response to the 2030 Agenda, likely driven by educational reforms and increased academic focus on SDG 4. However, the slight decline in 2025 (792 global, 78 Türkiye) may

reflect a saturation point or shifting priorities, warranting further investigation into funding or policy changes.

Geographic and institutional outputs (Figure 6), underscore the dominance of countries like India (22%) and the USA (18%) in global SDG 4 research, with Türkiye contributing a modest 4.7%. The prominence of institutions like Middle East Technical University and Boğaziçi University in Türkiye aligns with their established roles in educational research. However, Türkiye's lower contribution compared to global leaders suggests an opportunity to enhance research capacity, possibly through increased funding or international partnerships.

Author collaboration networks (Figure 3) reveal a stark contrast: global research benefits from robust international collaboration (28% of publications), while Türkiye's research is more localized (12% international co-authors). This limited global engagement may restrict Türkiye's access to diverse perspectives and resources, a finding consistent with regional research patterns (UNESCO, 2020). The example of a 2023 UK-India collaborative study highlights the potential for cross-country synergy, which Türkiye could emulate to elevate its SDG 4 scholarship.

Thematic structures (Figure 4) show global research emphasizing “sustainable development goals” (12.3%) and “higher education” (7.4%), reflecting a broad SDG 4 focus on policy frameworks and institutional development. In contrast, Türkiye's emphasis on “e-learning” (5.6%) aligns with post-COVID-19 educational shifts, particularly the rapid adoption of digital platforms in response to pandemic-induced disruptions (UNESCO, 2020). This focus is a strategic response to national needs but may limit attention to other SDG 4 dimensions, such as inclusive education.

Citation analysis (Figure 5, Table 3) indicates significant global impact (62,450 citations, peaking at 9,173 in 2021), driven by works like “Advancing SDG 4: Global Policy Frameworks.” Türkiye's lower citation impact (1,230 total, peaking at 65 in 2024) and focus on e-learning themes suggest a niche but less globally influential output. The 2021 global citation peak likely reflects heightened policy discussions post-2020, while Türkiye's 2024 peak may correlate with recent e-learning innovations.

These findings highlight Türkiye's emerging role in SDG 4 research, with strengths in e-learning but gaps in international collaboration and broader thematic coverage. Addressing these gaps could enhance Türkiye's contribution to global educational research, aligning with SDG 4's goal of inclusive and equitable education (UNESCO2020).

References

- Abad-Segura, E., González-Zamar, M. D., Infante-Moro, J. C., & Ruipérez García, G. (2020). Sustainable management of digital transformation in higher education: Global research trends. *Sustainability*, *12*(5), 2107. <https://doi.org/10.3390/su12052107>
- Akintolu, M., & Adewoye, S. E. (2024). Systematic review of the role of open and distance education in achieving the sustainable development goals (SDGs). *International Journal of Learning, Teaching and Educational Research*, *23*(12), 113–129.
- Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, *11*(4), 959–975. <https://doi.org/10.1016/j.joi.2017.08.007>
- Aydogmus, H. Y., Turkan, Y. S., & Aydogmus, U. (2023). A bibliometric analysis of higher education and the sustainable development goals. In *Considerations on Education for Economic, Social, and Environmental Sustainability* (pp. 1–25). IGI Global. <https://doi.org/10.4018/978-1-6684-8743-6.ch001>
- Boztaş, G. D., Berigel, M., & Altınay, F. (2024). A bibliometric analysis of Educational Data Mining studies in global perspective. *Education and Information Technologies*, *29*(7), 8961–8985. <https://doi.org/10.1007/s10639-024-12206-7>.
- Bozkurt, N. O., & Bozkurt, E. (2024). Systems thinking in education: A bibliometric analysis. *Körpeoğlu Journal*, *49*(218).
- Demiray, B., & Ünlüoğlu, D. Ü. (2023). A bibliometric analysis of research trends on gender and sustainability: Future research perspectives. *İmgelem*, *7*(13), 545–560.
- Doğru, M., Güzeller, C. O., & Çelik, M. (2019). A bibliometric analysis in the field of sustainable development and education from past to present. *Adıyaman University Journal of Educational Sciences*, *9*(1), 42–68.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296. <https://doi.org/10.1016/j.jbusres.2020.11.001>
- Erdoğan, E., & Temel, A. (2024). Determining the trends in global citizenship publications in education: A bibliometric analysis. *Ordu Üniversitesi Sosyal Bilimler Enstitüsü Sosyal Bilimler Araştırmaları Dergisi*, *14*(4), 1534–1555.
- González García, E., Colomo Magaña, E., & Cívico Ariza, A. (2020). Quality education as a sustainable development goal in the context of 2030 agenda:

- Bibliometric approach. *Sustainability*, 12(15), 5884. <https://doi.org/10.3390/su12155884>
- Gürhan, E. (2025). Primary school curriculum reform in Türkiye: Analyzing recent innovations in national education policies. *Al-Adzka: Jurnal Ilmiah Pendidikan Guru Madrasah Ibtidaiyah*, 15(1), 143–155.
- Hallinger, P., & Chatpinyakoo, C. (2019). A bibliometric review of research on higher education for sustainable development, 1998–2018. *Sustainability*, 11(8), 2401. <https://doi.org/10.3390/su11082401>
- Jamali, S. M., Ale Ebrahim, N., & Jamali, F. (2023). The role of STEM education in improving the quality of education: A bibliometric study. *International Journal of Technology and Design Education*. <https://doi.org/10.1007/s10798-022-09762-1>
- Kesgin, K., & Ozer, D. (2025). BiBLoX: A flask-based automatic bibliometrics and machine learning system for scientific trend prediction. *Authorea Preprint*. <https://doi.org/10.22541/au.170203328.44333212/v1>
- Maral, M., & Ho, Y. S. (2024). Türkiye'de eğitim araştırmaları: Global literatürün bibliyometrik analizi. *Eğitim ve Bilim*, 50(221).
- Maryanti, R., Rahayu, N. I., & Muktiarni, M. (2022). Sustainable development goals (SDGs) in science education: Definition, literature review, and bibliometric analysis. *Journal of Engineering Science and Technology, Special Issue ICMScE2022*, 176–183. http://jestec.taylors.edu.my/Special%20Issue%20ICMScE2022/ICMScE2022_20.pdf
- Mishra, M., Desul, S., Santos, C. A. G., & Mishra, S. K. (2024). A bibliometric analysis of sustainable development goals (SDGs): A review of progress, challenges, and opportunities. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-023-03225-w>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- Pedraja-Rejas, L., Rodríguez-Ponce, E., & Muñoz-Fritis, C. (2023). Sustainable development goals and education: A bibliometric review—The case of Latin America. *Sustainability*, 15(12), 9833. <https://doi.org/10.3390/su15129833>
- Prieto-Jiménez, E., López-Catalán, L., & López-Catalán, B. (2021). Sustainable development goals and education: A bibliometric mapping analysis. *Sustainability*, 13(4), 2126. <https://doi.org/10.3390/su13042126>

- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>
- UNESCO. (2016). *Education 2030: Incheon Declaration and Framework for Action for the implementation of Sustainable Development Goal 4*. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000245656>
- UNESCO. (2020). *Global Education Monitoring Report 2020: Inclusion and education – All means all*. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000373718>
- UNESCO Institute for Lifelong Learning. (2022). *Transforming education: A lifelong learning perspective*. Hamburg: UIL. <https://www UIL.unesco.org/en>
- Usta, M. E., Doğan, Ü., & Abdurrezzak, S. (2025). Bibliometric analysis of studies on sustainability in education. *Journal of Education and Future*(27), 161–176.
- Yamaguchi, N. U., Bernardino, E. G., & Ferreira, M. E. C. (2023). Sustainable development goals: A bibliometric analysis of literature reviews. *Environmental Science and Pollution Research*, 30, 52915–52936. <https://doi.org/10.1007/s11356-022-24379-6>
- Yaman, F., & Aras, H. (2025). Agenda 2030 and beyond: A thematic exploration of Türkiye's Gen Z views on sustainable development goals. *Sustainable Development*. <https://doi.org/10.1002/sd.2624>
- Yılmaz Fındık, L., & Erçetin, Ş. Ş. (2023). How do universities in Türkiye integrate sustainable development goals into their strategies? *Sustainability*, 15(24), 16799. <https://doi.org/10.3390/su152416799>