



Redefining Educational Boundaries: The Impact of Accelerationism on Higher Education

Juan Dempere ¹, Hesham Allam², and Paulo Mattos¹

¹ Higher Colleges of Technology, Ras Al Khaimah, UAE

² Ball State University, Muncie, IN, USA

Abstract. This article explores the profound potential of accelerationism to revolutionize higher education, emphasizing its transformative capacity in fostering a dynamic, innovative, and responsive academic ecosystem. The study begins by tracing accelerationism's philosophical and socio-political roots, advocating for the strategic and expedited use of technology and methodologies to trigger significant societal transformation. It delves into accelerationism's theoretical foundations, highlighting how this approach challenges traditional educational models by promoting rapid technological and pedagogical evolution. Specifically, the research investigates accelerationism's influence on curriculum design, faculty development, and student engagement. It highlights initiatives such as AI-powered teaching assistants, adaptive learning platforms, and project-based learning as practical embodiments of this transformative philosophy. Adhering to PRISMA standards for systematic literature analysis, the study provides a comprehensive examination of accelerationism within the educational sector. By doing so, it offers insights into how higher education institutions can embrace accelerationism to better equip students and educators for the complexities of a fast-evolving global landscape.

Keywords: accelerationism, Artificial Intelligence, AI, Machine Learning, ML, digital revolution, higher education, pedagogy.

1 Introduction

Accelerationism is a philosophical and political approach that has gained attention in recent years, particularly within the context of technological and social change. Accelerationism advocates intensifying capitalist processes to precipitate radical social change. The theory posits that by accelerating capitalism's inherent contradictions and dynamics, society can reach a tipping point that will lead to transformative social and political reconfigurations. This approach, when applied to education, has the potential to disrupt traditional paradigms and pave the way for innovative learning methods [1].

Accelerationism does not simply advocate for adopting technological advancements but refers to the progressive development and deployment of innovative technologies that enhance efficiencies and capabilities in various sectors, including education [2].

accelerationism focuses explicitly on accelerating capitalist mechanisms as a means to an end [3].

The distinction between technological advancement and accelerationism is crucial for understanding the latter's implications. Technological advancement in education might involve the adoption of AI tools to enhance learning outcomes, improve administrative efficiencies, or facilitate remote learning. However, accelerationism would argue for the use of these technologies to hasten the disruption of traditional educational systems, thereby forcing a reevaluation and restructuring of how education is delivered and perceived within a capitalist framework, a pressing need in our rapidly changing world [4].

Our article critically examines how such technological advancements, when viewed from the perspective of accelerationism, can catalyze profound and potentially disruptive changes in educational paradigms. Accelerationism in higher education conveys broader social and political implications of integrating advanced technologies into educational practices and the potential for these technologies to drive significant systemic transformations [5].

The transformative potential of accelerationism within higher education marks a pivotal point of investigation in the ongoing evolution of learning and teaching methodologies. As we stand on the cusp of significant educational reform, propelled by rapid technological advancements and shifting global paradigms, this article explores accelerationism's theoretical foundations and practical implications for higher education institutions.

As a conceptual framework, accelerationism traces its roots back to philosophical and socio-political discourses that advocate for intensifying technological and social processes to bring about radical societal change [6]. Initially emerging from critical theory and political thought, accelerationism challenges traditional approaches to societal development and progress, positing that the acceleration of technological innovation can lead to transformative outcomes. The implementation of Massive Open Online Courses (MOOCs) by prestigious universities such as Massachusetts Institute of Technology and Harvard through platforms like edX is a prime example of how accelerationist principles are being applied in higher education to democratize access to learning and disrupt traditional educational models [7].

Moreover, accelerationism's emphasis on leveraging technological advancements for societal transformation is evident in the rapid adoption of artificial intelligence (AI) and machine learning (ML) in pedagogical strategies. Institutions like Georgia Tech have pioneered the integration of AI teaching assistants to provide personalized learning experiences, demonstrating accelerationism's influence on reimagining the possibilities of teacher-student interaction [8].

These developments underscore a shift towards more agile, technology-driven educational ecosystems that embody accelerationist ideals, aiming to equip students with the skills and knowledge necessary to navigate and shape an increasingly complex and fast-paced world. Our article delves into the historical lineage of accelerationism, outlining its evolution from a theoretical stance into a pragmatic approach within education. We establish a foundational understanding of its core principles by examining the critical theorists and works shaping the accelerationist discourse. These principles

advocate leveraging technological advancements as incremental improvement tools and catalysts for comprehensive systemic transformation [6].

In the context of higher education, accelerationism prompts a reevaluation of pedagogical practices, administrative strategies, and institutional frameworks. It encourages educators and policymakers to explore how the acceleration of digital technologies, innovative teaching methodologies, and new academic engagement modes can redefine traditional education's boundaries. For instance, the rapid adoption of online learning platforms during the COVID-19 pandemic exemplifies accelerationism's influence on education, where institutions globally have had to swiftly transform their delivery models to ensure continuity of learning [5].

This reconceptualization is not limited to adopting new technologies; it involves a holistic transformation of the educational landscape to prepare institutions and individuals for a rapidly changing future. The use of AI and ML in personalized learning experiences, as seen in initiatives like the AI-powered teaching assistants at the Georgia Institute of Technology mentioned above, illustrates how technological advancements can lead to innovative educational practices [8].

By situating accelerationism within the historical, educational theory and practice continuum, we aim to provide a nuanced understanding of its potential to revolutionize higher education. Our study further dissects accelerationism's multifaceted impact on curriculum design, faculty development, student engagement, and beyond [4]. Through this lens, our article seeks to illuminate how accelerationism can foster a more dynamic, responsive, and innovative higher education ecosystem, thereby contributing to the broader discourse on the future of learning in an increasingly accelerated world.

Accelerationism provides a novel perspective on reshaping higher education for the future, encouraging institutions to embrace change and foster innovation amidst technological and societal transitions [6]. This approach emphasizes the rapid integration of advanced technologies and methodologies, aiming to accelerate the pace of educational evolution in curriculum design, teaching strategies, and governance [4]. This study explores the potential of accelerationism to drive significant reforms in educational practices, infrastructure, and philosophies, advocating for a reimaged interaction among educators, students, and the academic community at large.

The COVID-19 outbreak triggered the adoption of accelerationism in many higher education institutions, with universities forced to rapidly transition to online learning platforms, thereby inadvertently embracing aspects of accelerationist thought [5]. For example, using AI-powered tools for personalized learning experiences and administrative automation showcases accelerationism's impact on educational methodologies and operational efficiencies [8]. Furthermore, partnerships between universities and tech companies to develop digital learning platforms exemplify the practical application of accelerationist principles, demonstrating how these collaborations can enhance educational accessibility and engagement [7].

Accelerationism impacts every aspect of higher education, driving innovation in instructional approaches, curriculum design, and community involvement. It champions dynamic, digital-first strategies and interdisciplinary cooperation to boost learning outcomes, emphasizing the readiness of educators and students for a complex, globalized landscape [4, 6]. This philosophy also enhances student support, counseling, and library

services to meet the evolving demands of the academic world. Moreover, accelerationism highlights the necessity of ongoing professional development for faculty, encouraging adaptability to keep abreast of technological and educational advancements [5]. It advocates for agile and transparent institutional management, promoting governance models that can quickly adapt to new challenges and opportunities in the educational sector [7].

In sum, accelerationism's role and potential in transforming higher education encompass a holistic reimagining of how academic institutions operate, engage with stakeholders, and fulfill their educational missions in the 21st Century [8]. This section sets the stage for a deeper exploration of accelerationism's impact on higher education, paving the way for discussions on its implementation, outcomes, and broader strategic implications.

2 Methods

This study delves into the transformative effects of accelerationism on higher education, employing a systematic methodology to gather, analyze, and interpret data on the subject. It sets specific research objectives to examine accelerationism's influence on pedagogical methods, technology use, faculty development, and governance in educational settings, guided by questions that assess its potential to improve educational outcomes and foster innovation in the face of rapid academic changes [4, 6].

Adopting the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, the research undertakes a detailed literature review, ensuring a thorough and unbiased examination of accelerationism within higher education [9]. Briefly, the databases searched included PubMed, Web of Science, and ERIC, which are widely recognized for their comprehensive coverage of educational and technological research. The keywords utilized in our search strategy were "accelerationism," "higher education," "artificial intelligence," "digital learning," and "pedagogical innovation." These terms were carefully selected to capture the core themes of our investigation. Additionally, the criteria for selecting studies involved the inclusion of peer-reviewed articles with a focus on empirical research that explores the intersection of accelerationism and higher education. Studies were evaluated based on their methodological rigor, relevance to the research questions, and contribution to understanding the transformative potential of accelerationism in educational contexts. By providing this supplementary information, we aim to offer readers a clearer understanding of the scope and rigor of our literature review process. [10, 11].

By meticulously following PRISMA and employing rigorous screening processes, our study seeks to provide a comprehensive overview of accelerationism's role and efficacy in reshaping higher educational practices. This approach ensures that the conclusions are based on credible, high-quality research, laying a solid foundation for further inquiry and practical application in the evolving landscape of higher education.

3 Literature Review

As a conceptual framework, accelerationism traces its roots back to philosophical and socio-political discourses that advocate for intensifying technological and social processes to bring about radical societal change. This literature review examines the multifaceted dimensions of accelerationism, highlighting its origins, theoretical underpinnings, and implications for understanding and navigating the complexities of higher education transformation.

Accelerationism finds its theoretical foundations in the works of thinkers such as Deleuze and Guattari [12-15], whose ideas on desiring-production and deterritorialization inform the accelerationist vision of a post-capitalist society. Haynes [6] elaborates on these concepts, illustrating accelerationism's drive to intensify and repurpose the market of ideas inherent to capitalism, catalyzing a transition to new forms of social organization. This reimagining is grounded in the performative fiction of hyperstition, challenging prevalent academic assumptions and contributing to the debate on the transformation of capitalism [6].

Rosa's [16] exploration of social acceleration provides a comprehensive account of the phenomenon as a characteristic of modernity, dissecting the mechanisms and manifestations of accelerated social change. This work elucidates the self-propelling nature of social acceleration within capitalist societies, critically examining acceleration's implications for time, identity, and politics [16].

Critiques of accelerationism, such as those presented by Gardiner [17], engage with post-Autonomist thinkers like Franco 'Bifo' Berardi, contrasting accelerationism's call for intensifying capitalist dynamics with Berardi's advocacy for a post-politics of ironic detachment and aesthetic cultivation. Gardiner [17] challenges accelerationism's feasibility and ethical implications, calling for a nuanced understanding of its potential to augment capital's power rather than transcend it.

Sellar and Cole [4] apply an accelerationist lens to the critical sociology of education, probing the potential of technology and automation to transform educational practices and outcomes. Their analysis questions whether technological advancement in education can be decoupled from capitalist imperatives, highlighting the need for critical engagement with commercial technology providers and data analytics in educational settings [4].

Sheldon [18] draws parallels between accelerationism and queer theory, noting their shared interest in the future as a domain of political contestation. By contrasting accelerationism's rationalist tendencies with queer theory's emphasis on effect and aesthetics, Sheldon [18] uncovers the evolutive nature of accelerationist rationality, suggesting its potential for fostering queer futurities.

4 Influence on Higher Education

Accelerationism's influence on higher education calls for a transformative approach to curriculum design and teaching methods, pushing for an educational model that embraces interdisciplinarity and keeps pace with rapid technological and societal changes

[4]. This shift promotes using digital innovations, simulation-based learning, and practical problem-solving to enhance student engagement and learning outcomes, aiming to develop adaptability, creativity, and a mindset geared toward continual innovation. For instance, virtual reality (VR) in medical training offers students hands-on surgical practice in a safe, simulated setting, significantly enriching their educational experience [19]. Stanford University's d.school exemplifies that project-based learning aligns with accelerationist ideals by challenging students to address real-world issues through design thinking, thus diminishing the divide between theoretical learning and real-world implementation [20].

In accelerationist higher education, integrating cutting-edge technologies like AI, VR, and blockchain is pivotal for redefining teaching and learning. These technologies improve content delivery and foster immersive and interactive experiences beyond traditional classroom settings [4, 19]. AI customizes learning to fit individual student needs by dynamically adjusting to their unique abilities, while VR enhances learning through safe, simulated practices [8, 19]. Additionally, digital platforms promote collaborative learning across distances, and blockchain offers a secure, easily verifiable system for academic credentials, streamlining the global recognition of educational qualifications [5, 21].

The accelerationist perspective emphasizes technology's crucial role in transforming higher education by enhancing efficiency, broadening access, and nurturing a worldwide learning community. This adoption signifies a move towards a unified, inventive, and adaptable educational environment attuned to an accelerated era's needs. Embracing accelerationism in higher education demands rethinking faculty and staff development, necessitating fluency in new technologies and the pedagogical acumen to manage a fast-paced learning setting [4]. This adjustment involves comprehensive training in digital skills and innovative educational approaches. For example, the European Commission's Digital Education Action Plan underlines the push to effectively bolster educators' digital competencies to navigate and contribute to the evolving digital educational sphere [22].

This research highlights how performance metrics in higher education are evolving to mirror the shifting roles of educators within an accelerationist context, emphasizing adaptability, innovation, and the cultivation of critical thinking and creativity. Adopting AI and ML in education necessitates reevaluating faculty skills to leverage such advancements [8]. By updating training and performance assessment criteria, educational institutions can ensure that their faculty are equipped to lead and support transformative learning experiences. Examples like the use of blockchain for managing educational credentials above underscore the importance of faculty proficiency in new technologies to maintain academic integrity and operational efficiency [21]. Furthermore, accelerationism's influence extends to reimagining academic support services, making them more agile and technologically adept to meet the complex needs of today's learners [4].

Accelerationism drives the adoption of novel approaches in student services and counseling, addressing students' psychological, emotional, and academic needs through digital innovation. AI-driven platforms for mental health support and virtual peer communities exemplify this shift, enhancing student well-being alongside academic achievement [8]. Academic advising and library services are also evolving, with

data analytics enabling personalized academic guidance and digital libraries offering extensive online resources and virtual research support. These changes cater to a digitally adept student body, improving information access, research capabilities, and academic success within an accelerated educational environment [5, 19].

Accelerationism is a transformative force in the administration and strategic planning of higher education institutions, necessitating a dynamic and forward-thinking approach to governance that can adapt to the rapid changes and uncertainties of the 21st Century [23; 24]. This approach involves reevaluating traditional models of institutional structure, decision-making processes, and strategic priorities to foster agility, innovation, and resilience [25]. Administrators are prompted to adopt data-driven strategies, a trend increasingly recognized as crucial in higher education decision-making [26]. Engaging in continuous scenario planning is another crucial aspect, with higher education institutions recognizing its importance in navigating an uncertain future [27]. Fostering a culture of innovation is also essential in this context. Higher education institutions are encouraged to cultivate an institutional culture that promotes creativity, understands the benefits of innovation, energizes openness to innovation, and lowers resistance to change [28]. The strategic planning process becomes an iterative, inclusive, and flexible exercise that aligns institutional goals with the accelerated evolution of the educational landscape, ensuring that institutions remain relevant, responsive, and prepared for the future [27].

5 Assessment of Accelerationism's Impact

Accelerationism's influence on higher education is transformative. It alters the infrastructure and delivery of education and significantly impacts learning outcomes and student engagement [29]. This transformative impact prompts reevaluating how learning outcomes are assessed, necessitating innovative approaches to measuring student engagement effectively [30].

Accelerationism, emphasizing rapid technological and social evolution, drives a shift in learning outcomes from traditional knowledge acquisition to fostering adaptability, critical thinking, and innovation [31]. Higher education institutions increasingly integrate project-based learning, collaborative assignments, and real-world problem-solving into their curricula to align with accelerationist principles [32].

These methodologies not only enhance the relevance of education to the modern world but also require new assessment metrics that value creativity, problem-solving abilities, and the application of knowledge in dynamic environments [33]. For instance, the University of Federico II in Naples has implemented a problem-centered curriculum that surpasses traditional academic boundaries and integrates curriculum components that typically remain distinct, embodying the principles of accelerationism [34].

The evolution of assessment methodologies in education is anticipated to incorporate digital portfolios, peer reviews, and reflective journals, supplementing traditional exams and essays. These tools offer a comprehensive perspective on student achievements, encapsulating their capacity to adapt to swift changes, a crucial outcome in education influenced by accelerationism [35].

Accelerationism focuses on harnessing technological advancements that substantially amplify student engagement. Digital platforms, VR, and interactive simulations generate more engaging and immersive learning experiences. These technologies promote active learning, transforming students from passive information recipients to active participants. Such heightened engagement with the content and the learning process cultivates a deeper connection to the material and encourages ongoing exploration and inquiry.

The application of gamification in education, inspired by accelerationist perspectives, further illustrates this shift. Educators can significantly enhance motivation and participation by integrating game design elements into learning activities, making learning effective and enjoyable. A systematic review of the use of gamification in educational peer review activities provides empirical evidence for its effectiveness [36].

To accurately assess learning outcomes within an accelerationist framework, educational institutions are increasingly adopting mixed methods that amalgamate quantitative and qualitative data. For instance, analytics derived from learning management systems offer insights into students' engagement patterns and progression, while qualitative feedback obtained from peer assessments and reflective writings provide a deeper understanding of student learning [35].

Evolving technologies such as AI and ML are being explored for their potential to provide real-time assessments and feedback, aligning with accelerationism's emphasis on immediacy and constant adaptation. These technologies can potentially revolutionize assessment by offering personalized feedback, identifying areas for improvement, and even predicting future learning paths for students. A systematic review of AI-driven educational assessment in STEM education provides empirical evidence for its effectiveness [37].

Accelerationism motivates students by making learning more pertinent to their lives and prospective careers. Incorporating real-world projects and industry collaborations invigorates students by showcasing the practical application of their studies [38]. Furthermore, using technology to craft interactive and customizable learning experiences meets students in their digital comfort zone, amplifying motivation and participation [39].

However, educators must strike a balance between the use of technology and the necessity for human interaction and support. Personalized learning paths facilitated by AI must be supplemented with mentorship and guidance from educators to ensure that students not only remain motivated but also deeply engage with the material on a personal level [40].

The accelerationist approach to education calls for reimagining learning outcomes and student engagement. By adopting new technologies and pedagogies, higher education institutions can better equip students for a rapidly evolving world, ensuring they are knowledgeable, adaptable, innovative, and continuously engaged learners [23].

Incorporating accelerationism principles in higher education stimulates the growth of critical thinking and introduces substantial ethical implications. By endorsing accelerationism's demand for amplified technological and societal processes, educational institutions are charged with nurturing innovative thought and steering through the ethical terrains reshaped by swift change [4].

Accelerationism's impact on higher education challenges the confines of traditional learning models, underscoring the need to cultivate critical and creative thinking skills. In this vibrant learning environment, students are motivated to question existing paradigms and conceive new possibilities, mirroring accelerationism's fundamental challenge to standard societal development [41]. To foster these skills, educators integrate problem-based learning [42], interdisciplinary projects [43], and simulations that mirror real-world complexities [44] compelling students to analyze, evaluate, and devise solutions to multifaceted problems.

This pedagogical transition towards a more inquiry-based, exploratory learning model aligns with accelerationism's ethos of utilizing rapid technological advancements to propel societal progress [45]. Students learn to navigate and critically evaluate the vast amounts of information and technology, applying these tools innovatively to tackle contemporary issues. The objective is to equip students with the capacity to think critically and creatively in the face of accelerated change, ensuring they can contribute significantly to the ongoing societal transformation.

The accelerationist framework, which advocates rapid technological and societal advancement, inherently presents a series of ethical dilemmas, particularly in accelerated learning. As educational institutions adopt rapidly advancing technologies and methodologies, privacy and data security questions arise. These concerns are echoed in a study by Hoel and Chen [46], who argue that privacy and data protection are major stumbling blocks for a data-driven educational future. Moreover, the acceleration of content delivery and consumption challenges the traditional pace of learning, prompting ethical considerations about the depth of understanding and the student potential overwhelm.

To address these dilemmas, higher education institutions must foster an ethical consciousness among students and faculty. This approach involves integrating ethics into the curriculum, not as a separate discipline but as a fundamental aspect of all areas of study [47]. Dialogues and deliberations on the moral ramifications of technological progress, data use, and societal acceleration become critical components of the learning experience [34]. By doing so, institutions can prepare students to navigate and critically evaluate the moral terrains they will navigate in their personal and professional journeys [48].

Furthermore, ethical considerations regarding equity and access become paramount in an accelerationist-driven education system. Ensuring that all students have equal opportunities to benefit from advanced technologies and learning methodologies requires conscious efforts to bridge gaps in access and understanding [49]. This approach includes supporting students who may need help with the accelerated pace of learning [50] and ensuring that technological advancements do not exacerbate existing inequalities.

In summary, implementing accelerationism principles in higher education brings to the forefront the need to develop critical and creative thinking skills while addressing the ethical dilemmas posed by rapid societal and technological change. By embracing these challenges, higher education institutions can prepare students to thrive in an accelerated world, equipped with the skills and ethical awareness necessary to navigate and shape the future.

6 Implications and Foresighted Outcomes

The integration of accelerationism principles within higher education institutions signifies a transformative shift in pedagogy, research, and institutional structure. This paradigm, deeply rooted in the aspiration to leverage technological advancements for societal progress, has profound implications for academia, policymaking, and global educational practices [13, 24]. By questioning established norms and championing the rapid adoption of innovation, accelerationism provides a roadmap for redefining the future of education [24].

Accelerationism's call for an intensified technological and social change pace necessitates reevaluating existing educational policies and frameworks. This call demands a flexible, forward-thinking approach to policymaking globally that can support the dynamic needs of accelerationist-driven institutions [51]. Policies must facilitate the adoption of new technologies and methodologies and ensure that these innovations enhance educational equity and access [52]. As accelerationism gains traction in academia, policymakers must balance fostering rapid innovation and ensuring the responsible use of technology in education [53].

Moreover, the global context of accelerationism in academia underscores the need for international collaboration and dialogue. Given the wide variation in educational systems' structure, resources, and cultural contexts worldwide, implementing accelerationism principles will differ across regions [54]. Policies must adapt to local contexts while encouraging a worldwide sharing of concepts and optimal strategies [54]. This international perspective on accelerationism highlights the potential for cross-cultural learning and sharing innovations that can benefit the global educational community [55].

To effectively adopt principles of acceleration in higher education, several critical recommendations for policy and educational frameworks can be made:

- 1) **Foster Innovation through Flexible Policy:** Create educational policies that are adaptable and open to experimentation, allowing institutions to implement and test new technologies and pedagogical approaches rapidly. Policies should encourage innovation while providing a safety net to assess and mitigate potential risks. For example, the European Commission's Digital Education Action Plan emphasizes the need for flexible and innovative policies to support the integration of digital technologies in education [22]. Additionally, institutions like Stanford University have adopted flexible policies to experiment with new educational technologies, thereby fostering a culture of innovation [56].
- 2) **Ensure Equitable Access:** Develop policies prioritizing equitable access to technology and resources, ensuring accelerationism's benefits reach all students, regardless of socioeconomic background. This strategy includes investments in digital infrastructure, scholarships, and support programs. For instance, the World Bank emphasizes the importance of digital equity in education, advocating for significant investments in technology and support systems to bridge the digital divide [57]. Additionally, initiatives such as the FCC's Emergency Broadband Benefit program in the United States illustrate efforts to provide affordable internet access to low-income households, thereby supporting equitable access to online education [58].

3) **Promote Interdisciplinary Collaboration:** Encourage policies that facilitate interdisciplinary and cross-institutional collaborations, leveraging the strengths of diverse academic disciplines to address complex problems through an accelerationist lens. For example, initiatives like the MIT Media Lab exemplify how interdisciplinary collaboration can lead to groundbreaking innovations by bringing together experts from different domains to work on shared projects [59].

4) **Invest in Faculty Development:** Implement frameworks for continuous professional development of faculty, focusing on digital literacy, innovative teaching methods, and the ethical implications of accelerated technological change. This includes regular training sessions, workshops, and access to resources that help educators stay abreast of the latest technological advancements and pedagogical strategies. For instance, the European Commission's Digital Education Action Plan highlights the necessity of upskilling educators to effectively integrate digital technologies into their teaching [22]. Additionally, peer-reviewed studies emphasize the importance of faculty development programs in fostering a culture of continuous improvement and adaptability to technological changes [60].

5) **Embrace International Partnerships:** Foster policies that support international partnerships and collaborations, recognizing the global nature of technological and social change. This scheme facilitates student and faculty exchanges, joint research projects, and shared digital learning platforms. For instance, the OECD emphasizes the importance of international collaboration in education to enhance innovation and address global challenges collectively [61]. Additionally, successful initiatives like the Erasmus+ program in the European Union demonstrate the benefits of international partnerships by promoting mobility and cooperation in education across member states [62]. These collaborations can enrich educational experiences and drive forward the accelerationist agenda in higher education by integrating diverse perspectives and resources.

The adoption of accelerationism principles in higher education must be sensitive to cultural nuances and varying international contexts. Policies and frameworks should be designed with cultural adaptability, recognizing that accelerationism will manifest differently across cultures. For instance, integrating technology in the classroom must respect cultural attitudes towards education and technology use, ensuring that initiatives are inclusive and respectful of local traditions and values. This integration is supported by a study by Sridharan *et al.* [63], highlighting the significance of integrating peer evaluation/feedback and cooperative team-based learning to equip graduates for the workforce and promote desirable social conduct.

International adoption patterns of accelerationism will likely reflect a spectrum of approaches, from rapid integration in technologically advanced regions to more gradual adoption in areas where digital infrastructure is still developing. This variety is echoed in the work of Noys [24], who discusses the evolution of accelerationism and its capacity to support an in-depth examination of the increasing involvement of commercial technology providers in education, emerging data analytics methods, and the implementation of ML algorithms. to analyze data. Recognizing and supporting these varied adoption patterns is crucial for the global success of accelerationism in academia.

Collaboration and sharing of insights across borders can ensure that accelerationism enriches educational experiences worldwide, driving collective progress toward a more innovative, equitable, and accelerated future of learning. This approach aligns with the findings of Herodotou *et al.* [64], who argue that the development of smart learning environments, which optimize learners' ability to learn, is crucial for the future of education.

Implementing accelerationism in higher education requires a nuanced approach that ensures inclusivity and diversity are at the forefront. Accelerationism dismantles traditional educational barriers and creates a more equitable learning environment by pushing boundaries and catalyzing change. This impact is reflected in the work of Cheung *et al.* [65], who discuss the importance of creating learning environments that emphasize learning effectiveness, efficiency, flexibility, and engagement.

Curriculum development should emphasize global perspectives and multicultural competencies. This emphasis involves integrating studies and perspectives from diverse cultures and identities, ensuring that all students see themselves reflected in their learning materials and understand the diversity of the world around them [66].

As digital tools become central to the accelerationist approach, institutions must prioritize accessibility, guaranteeing that every student, irrespective of disability, receives equitable access to technological tools. This reinforcement assurance includes investing in accessible learning platforms and training students and staff on using these tools effectively [67].

Encouragement of underrepresented groups to enter STEM fields should be a particular focus. This can be achieved through mentorship programs, scholarships, and community-building initiatives to reduce barriers and create supportive networks for minority students. Research has shown that mentorship and exposure to role models of the same gender or ethnicity can significantly encourage underrepresented students to pursue STEM [68].

The long-term sustainability of accelerationist initiatives in higher education hinges on their ability to adapt to and positively impact sustainability's social, economic, and environmental dimensions. Husic [69] argues that universities have come a long way in developing sustainability programs. Nevertheless, there is a requirement to rekindle the concept of dedication to the public good and collaborate across various institutions and sectors to tackle intricate societal issues.

Institutions must consider the environmental impact of their increased reliance on technology. This consideration includes adopting green computing practices, investing in energy-efficient infrastructure, and encouraging the development of sustainable technologies through research and innovation.

Accelerationism's push for rapid technological adoption must be balanced with ethical considerations. Institutions should implement frameworks for ethical decision-making in developing and applying new technologies, ensuring that accelerationist initiatives contribute to the public good without exacerbating social inequalities.

Higher education institutions can enhance the sustainability of accelerationist initiatives by engaging with local and global communities. This enhancement includes collaborating with industry partners, governmental bodies, and NGOs to align

accelerationist projects with broader societal goals and ensure they have a positive, lasting impact.

Inclusive education practices are essential for the successful adoption of accelerationism principles. These practices involve:

- **Flexible Learning Pathways:** Providing students with varied learning pathways, including part-time, online, and accelerated programs, to accommodate diverse needs and life circumstances [70]. These pathways include part-time options, online courses, and accelerated programs. By providing diverse routes for learning, institutions can accommodate students' individual circumstances and enhance their educational experiences [71].
- **Support Services:** Enhancing support services such as tutoring, counseling, and academic advising, tailored to meet the needs of a diverse student body, including those from underrepresented groups or with disabilities. Effective support services are crucial for fostering an inclusive educational environment that enables all students to succeed. The OECD emphasizes the importance of inclusive support systems in education to address the diverse needs of students and promote equity [72]. For instance, research indicates that tailored support services significantly improve retention and academic success rates among marginalized student populations [73].
- **Cultural Competence Training:** Offering training for faculty and staff to improve cultural competence and awareness, ensuring they support diverse students and create an inclusive learning environment. By enhancing cultural awareness, educators can better support students' learning experiences and address their unique needs [71].
- **Longitudinal Analyses:** Perform longitudinal analyses to determine the impact of accelerationism on student outcomes, diversity, and inclusion, providing valuable insights into the long-term effectiveness of these initiatives. Longitudinal studies allow for the assessment of how accelerationist strategies influence various aspects of education over extended periods. For example, research by the National Center for Education Statistics highlights the importance of longitudinal data in understanding student progress and the effectiveness of educational interventions [74]. Additionally, a study published in the *Journal of Educational Psychology* demonstrates that longitudinal analyses can reveal trends and outcomes that inform policy and practice, ensuring that accelerationist approaches are both equitable and effective [75]. By continuously monitoring and evaluating these initiatives, institutions can make data-driven adjustments to enhance their impact on student success and inclusivity.
- **Best Practices for Inclusivity:** Develop and disseminate best practices for promoting inclusivity and diversity within accelerationism-based programs, serving as a resource for institutions looking to adopt these principles. This involves creating guidelines and frameworks that ensure equitable access to educational resources and opportunities for all students. The OECD highlights the importance of inclusive education policies that address the diverse needs of students and promote equity [76]. Additionally, initiatives like the Universal Design for Learning framework provide practical strategies for creating inclusive learning environments that accommodate diverse learning styles and needs [77]. By sharing these best practices, institutions can enhance their capacity to implement accelerationist principles effectively while fostering a more inclusive and diverse educational landscape.

- **Sustainability Metrics:** Establish metrics for assessing the environmental sustainability of accelerationist initiatives, encouraging continuous improvement and the adoption of green technologies. By implementing sustainability metrics, educational institutions can monitor and evaluate the environmental impact of their programs and make data-driven decisions to enhance sustainability efforts. The United Nations Educational, Scientific and Cultural Organization (UNESCO) emphasizes the importance of integrating sustainability into education through comprehensive metrics and reporting systems [78]. Additionally, research demonstrates that the adoption of green technologies and sustainability metrics in higher education can lead to significant environmental benefits and promote a culture of sustainability within institutions [79]. By prioritizing sustainability, institutions can align their accelerationist initiatives with broader environmental goals and contribute to a sustainable future.
- **Ethical Frameworks:** Create comprehensive ethical frameworks to guide the development and implementation of accelerationist technologies, ensuring they serve societal needs and promote equity. Establishing robust ethical guidelines is critical for addressing the potential ethical dilemmas associated with rapid technological advancements. The World Economic Forum emphasizes the importance of ethical frameworks in ensuring that technology serves the public good and promotes inclusive growth [80]. Additionally, peer-reviewed studies highlight the necessity of ethical considerations in the deployment of educational technologies to prevent disparities and ensure fair access for all students [81]. For instance, ethical frameworks can help mitigate biases in AI-driven educational tools, fostering a more equitable learning environment.

Higher education institutions can create a more equitable, sustainable, and innovative future by integrating accelerationism with a solid commitment to inclusivity, diversity, and sustainability.

Critics argue that accelerationism, with its emphasis on rapid technological and societal change, can exacerbate existing inequalities and lead to ethical dilemmas. For instance, Gardiner [17] highlights the concerns that accelerationism may augment capitalist dynamics rather than transcend them, potentially increasing the power of capital and furthering social inequalities. This perspective suggests that while accelerationism aims to leverage technological advancements for societal transformation, it may also inadvertently reinforce existing power structures and disparities.

Moreover, there are ethical concerns associated with the accelerationist agenda, particularly in education. Rapid adoption of technologies like AI and machine learning can raise issues related to privacy, data security, and the digital divide. Hoel and Chen [46] argue that privacy and data protection are significant challenges in a data-driven educational future. Additionally, the pressure to constantly adapt to new technologies can overwhelm students and educators, potentially compromising the depth and quality of learning [82]. Another critique suggests that the relentless drive for acceleration may overlook the need for reflective and ethical engagement with technological advancements [4].

Addressing these critiques in the article would provide a more nuanced understanding of accelerationism's impact on higher education. It would also highlight the importance of balancing technological innovation with ethical considerations and

equitable access, ensuring that the benefits of accelerationism are broadly shared and do not exacerbate existing inequalities [80].

By integrating these opposing views, the article can present a more balanced analysis, acknowledging both the transformative potential of accelerationism and the critical challenges that must be addressed to ensure its ethical and equitable implementation in higher education.

7 Conclusions

This article delves into how accelerationism drives a significant educational strategy and methodology shift. This concept promotes using cutting-edge technology to instigate major societal and educational transformations, thereby challenging, and reshaping the conventional educational setup. Accelerationism promotes an educational system in sync with the swift pace of technological and societal changes, urging a redefinition of the interactions among educators, students, and the academic sphere. Educational institutions are positioned to cultivate an environment that is not only adaptive and innovative but also equips learners to excel in a swiftly changing global context by adopting this approach.

This study highlights how accelerationism revolutionizes higher education in aspects like curriculum, faculty growth, student involvement, and governance, aiming to boost learning outcomes, spur innovation, and meet the fast-evolving demands of academia and society. It underscores accelerationism's role in advancing inclusivity, diversity, and sustainability, contributing to social betterment by enhancing accessibility, fairness, and environmental care. However, embedding accelerationism in higher education faces hurdles, such as balancing swift innovation with ethical technology use. Institutions must address these challenges by embracing adaptability, flexibility, and a solid ethical framework.

In summary, adopting accelerationism in higher education heralds a move towards a nimbler, more creative, and inclusive academic future. It necessitates a collaborative effort among educators, policymakers, and students to effectively manage this transition, ensuring education meets current demands while foreseeing future needs. This shift offers opportunities and challenges, prompting a reevaluation of higher education's potential and influence in an ever-evolving global landscape.

References

1. Noys, B. *Malign Velocities: Accelerationism and Capitalism*. Zero Books. (2014).
2. Srnicek, N., & Williams, A. *Inventing the Future: Postcapitalism and a World Without Work*. Verso. (2015). [https://openaccess.city.ac.uk/id/eprint/16935/1/SRNICEK%20and%20Williams%20\(2015\)%20'Inventing%20the%20Future'.pdf](https://openaccess.city.ac.uk/id/eprint/16935/1/SRNICEK%20and%20Williams%20(2015)%20'Inventing%20the%20Future'.pdf) last accessed on 5/30/2024.
3. Land, N. *Fanged Noumena: Collected Writings 1987-2007*. Urbanomic/Sequence Press. (2011).

4. Sellar, S., & Cole, D. Accelerationism: a timely provocation for the critical sociology of education. *British Journal of Sociology of Education*, 38: 38 - 48. <https://doi.org/10.1080/01425692.2016.1256190> (2017).
5. Marinoni, G., Van't Land, H., & Jensen, T. The impact of COVID-19 on higher education around the world. International Association of Universities (IAU) Global Survey Report. (2020). https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf last accessed on 4/10/2024.
6. Haynes, P. Is there a future for accelerationism? *Journal of Organizational Change Management*, 34(6): 1175-1187 (2021). <https://doi.org/10.1108/JOCM-12-2019-0398>
7. Kolowich, S. The professors behind the MOOC hype. *The Chronicle of Higher Education*. (March 18, 2012). <https://www.chronicle.com/article/the-professors-behind-the-mooc-hype/> last accessed on 4/10/2024.
8. Simonite, T. AI is transforming Google search. The rest of the web is next. *Wired*. (February 4, 2016). <https://www.wired.com/2016/02/ai-is-changing-the-technology-behind-google-searches/> last accessed on 4/10/2024.
9. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., ... Moher, D. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. (2021). <https://doi.org/10.1136/bmj.n71>
10. Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., ... Straus, S. E. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Annals of Internal Medicine*, 169(7), 467-473. (2018). <https://doi.org/10.7326/M18-0850>
11. Bramer WM, de Jonge GB, Rethlefsen ML, Mast F, Kleijnen J. Effective database search strategies for systematic reviews. *Journal of Medical Library Association*, 106(4), 531-536. (2018). <https://doi.org/10.5195/jmla.2018.283>
12. Hui, Y., & Morelle, L. A Politics of Intensity: Some Aspects of Acceleration in Simondon and Deleuze. *Deleuze Studies*, 11(4), 498-517. (2017). <http://www.jstor.org/stable/45331902>
13. Beckett, A. Accelerationism: how a fringe philosophy predicted the future we live in. *The Guardian* (May 11, 2017). <https://www.theguardian.com/world/2017/may/11/accelerationism-how-a-fringe-philosophy-predicted-the-future-we-live-in> last accessed on 4/11/2024.
14. Deleuze, G., & Guattari, F. *Anti-Oedipus: Capitalism and Schizophrenia*. University of Minnesota Press (1972).
15. Deleuze, G., & Guattari, F. *A Thousand Plateaus: Capitalism and Schizophrenia*. University of Minnesota Press (1980).
16. Rosa, H. *Social Acceleration: A New Theory of Modernity*. (2013). <https://doi.org/10.5860/choice.51-1797>
17. Gardiner, M. Critique of Accelerationism. *Theory, Culture & Society*, 34(1): 29-52. (2017). <https://doi.org/10.1177/0263276416656760>
18. Sheldon, R. ACCELERATIONISM'S QUEER OCCULTURE: "or, thinking according to the alien ovum of nature." *Angelaki*, 24(1): 118-129. (2019). <https://doi.org/10.1080/0969725X.2019.1568739>
19. Kyaw, B. M., Posadzki, P., Dunleavy, G., Semwal, M., Divakar, U., Viswasom, A., ... Car, L. T. Virtual reality for health professions education: Systematic review and meta-analysis by the digital health education collaboration. *Journal of Medical Internet Research*, 21(1), e12959. (2019). <https://doi.org/10.2196/12959>
20. Doorley, S., & Witthoft, S. *Make space: How to set the stage for creative collaboration*. John Wiley & Sons (2012). <https://www.wiley.com/en->

- us/Make+Space%3A+How+to+Set+the+Stage+for+Creative+Collaboration-p-9781118143728
21. Sharples, M., Domingue, J. The Blockchain and Kudos: A Distributed System for Educational Record, Reputation and Reward. In: Verbert, K., Sharples, M., Klobučar, T. (eds) *Adaptive and Adaptable Learning*. EC-TEL 2016. Lecture Notes in Computer Science, 9891. Springer, Cham. (2016). https://doi.org/10.1007/978-3-319-45153-4_48
 22. European Commission. Digital Education Action Plan (2021-2027). (2021). https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en last accessed on 4/11/2024.
 23. Sellar, S. Acceleration, Automation and Pedagogy: How the Prospect of Technological Unemployment Creates New Conditions for Educational Thought. In: Peters, M., Jandrić, P., Means, A. (eds) *Education and Technological Unemployment*. Springer, Singapore. (2019). https://doi.org/10.1007/978-981-13-6225-5_9
 24. Noys, B. Accelerationism: Adventures in Speed. In: Herbrechter, S., Callus, I., Rossini, M., Grech, M., de Bruin-Molé, M., John Müller, C. (eds) *Palgrave Handbook of Critical Posthumanism*. Palgrave Macmillan, Cham. (2022). https://doi.org/10.1007/978-3-030-42681-1_58-1
 25. Tierney, W.G., Lanford, M. Conceptualizing Innovation in Higher Education. In: Paulsen, M. (eds) *Higher Education: Handbook of Theory and Research*. Higher Education: Handbook of Theory and Research, vol 31. Springer, Cham. (2016). https://doi.org/10.1007/978-3-319-26829-3_1
 26. Meleg, Á., Vas, R. Towards Evidence-Based, Data-Driven Thinking in Higher Education. In: Kő, A., Francesconi, E., Kotsis, G., Tjoa, A., Khalil, I. (eds) *Electronic Government and the Information Systems Perspective*. EGOVIS 2020. Lecture Notes in Computer Science, vol 12394. Springer, Cham. (2020). https://doi.org/10.1007/978-3-030-58957-8_10
 27. Fumasoli, T. Strategic Planning in Higher Education. In: Teixeira, P.N., Shin, J.C. (eds) *The International Encyclopedia of Higher Education Systems and Institutions*. Springer, Dordrecht. (2020). https://doi.org/10.1007/978-94-017-8905-9_530
 28. Mohd Roffeei, S. H., Yusop, F. D., & Kamarulzaman, Y. Determinants of Innovation Culture amongst Higher Education Students. *The Turkish Online Journal of Educational Technology*, 17(1): 37-50. (2018). <https://files.eric.ed.gov/fulltext/EJ1165762.pdf> last accessed on 4/11/2024.
 29. Raffaghelli, J.E., Grion, V. Beyond Just Metrics: For a Renewed Approach to Assessment in Higher Education. In: Raffaghelli, J.E., Sangrà, A. (eds) *Data Cultures in Higher Education*. Higher Education Dynamics, vol 59. Springer, Cham. (2023). https://doi.org/10.1007/978-3-031-24193-2_4
 30. Coates, H. Assessment of Learning Outcomes. In: Curaj, A., Matei, L., Pricopie, R., Salmi, J., Scott, P. (eds) *The European Higher Education Area*. Springer, Cham. (2015). https://doi.org/10.1007/978-3-319-20877-0_26
 31. El-Azar, D. 4 trends that will shape the future of higher education. *World Economic Forum* (February 7, 2022). <https://www.weforum.org/agenda/2022/02/four-trends-that-will-shape-the-future-of-higher-education/> last accessed on 4/11/2024.
 32. Žerovnik, A., Nančovska Šerbec, I. Project-Based Learning in Higher Education. In: Vaz de Carvalho, C., Bauters, M. (eds) *Technology Supported Active Learning*. Lecture Notes in Educational Technology. Springer, Singapore. (2021). https://doi.org/10.1007/978-981-16-2082-9_3
 33. Morley, D.A., Jamil, M.G. Introduction: Real World Learning—Recalibrating the Higher Education Response Towards Application to Lifelong Learning and Diverse Career Paths. In: Morley, D.A., Jamil, M.G. (eds) *Applied Pedagogies for Higher Education*. Palgrave Macmillan, Cham. (2021). https://doi.org/10.1007/978-3-030-46951-1_1

34. Crompton, H., Burke, D. Artificial intelligence in higher education: the state of the field. *International Journal of Educational Technology in Higher Education*, 20(22). (2023). <https://doi.org/10.1186/s41239-023-00392-8>
35. Babik, D., Gehringer, E., Kidd, J. *et al.* A systematic review of educational online peer-review and assessment systems: charting the landscape. *Educational technology research and development*. (2024). <https://doi.org/10.1007/s11423-024-10349-x>
36. Indriasari, T.D., Luxton-Reilly, A. & Denny, P. Gamification of student peer review in education: A systematic literature review. *Education and Information Technologies*, 25: 5205–5234. (2020). <https://doi.org/10.1007/s10639-020-10228-x>
37. Ouyang, F., Dinh, T.A. & Xu, W. A. Systematic Review of AI-Driven Educational Assessment in STEM Education. *Journal for STEM Education Research*, 6: 408–426. (2023). <https://doi.org/10.1007/s41979-023-00112-x>
38. Rheingold, A., & Seaman, J. The Use-Value of Real-World Projects: Children and Local Experts Connecting Through School Work. *Dialogic Pedagogy: A Journal for Studies of Dialogic Education*, 5. (2017). <https://doi.org/10.5195/dpj.2017.165>
39. Bond, M., Buntins, K., Bedenlier, S. *et al.* Mapping research in student engagement and educational technology in higher education: a systematic evidence map. *International Journal of Educational Technology in Higher Education*, 17, 2. (2020). <https://doi.org/10.1186/s41239-019-0176-8>
40. Bernacki, M.L., Greene, M.J. & Lobaczowski, N.G. A Systematic Review of Research on Personalized Learning: Personalized by Whom, to What, How, and for What Purpose(s)?. *Educational Psychology Review*, 33: 1675–1715. (2021). <https://doi.org/10.1007/s10648-021-09615-8>
41. Ellerton, P., Kelly, R. Creativity and Critical Thinking. In: Berry, A., Bunting, C., Corrigan, D., Gunstone, R., Jones, A. (eds) *Education in the 21st Century*. Springer, Cham. (2021). https://doi.org/10.1007/978-3-030-85300-6_2
42. Trullàs, J.C., Blay, C., Sarri, E. *et al.* Effectiveness of problem-based learning methodology in undergraduate medical education: a scoping review. *BMC Med Educ* 22, 104. (2022). <https://doi.org/10.1186/s12909-022-03154-8>
43. Skrzek-Lubasińska, M. and Malik, R. Is critical thinking a future skill for business success: science mapping and literature review. *Central European Management Journal*, 31(1): 48-63. (2023). <https://doi.org/10.1108/CEMJ-09-2021-0110>
44. Sum, M., Oancea, A. The use of technology in higher education teaching by academics during the COVID-19 emergency remote teaching period: a systematic review. *International Journal of Educational Technology in Higher Education*, 19, 59. (2022). <https://doi.org/10.1186/s41239-022-00364-4>
45. Attard, C., Berger, N., & Mackenzie, E. The Positive Influence of Inquiry-Based Learning Teacher Professional Learning and Industry Partnerships on Student Engagement With STEM. *Frontiers in Education*, 6, 693221. (2021). <https://doi.org/10.3389/educ.2021.693221>
46. Hoel, T., Chen, W. Privacy and data protection in learning analytics should be motivated by an educational maxim—towards a proposal. *Research and Practice in Technology Enhanced Learning*, 13, 20. (2018). <https://doi.org/10.1186/s41039-018-0086-8>
47. Moore, S.L., Ellsworth, J.B. Ethics of Educational Technology. In: Spector, J., Merrill, M., Elen, J., Bishop, M. (eds) *Handbook of Research on Educational Communications and Technology*. Springer, New York, NY. (2014). https://doi.org/10.1007/978-1-4614-3185-5_10
48. Ohreen, D. The role of peers on student ethical decision making: evidence in support of the social intuitionist model. *International Journal of Ethics Education* 6, 289–309. (2021). <https://doi.org/10.1007/s40889-021-00125-3>

49. Vassilakopoulou, P., Hustad, E. Bridging Digital Divides: a Literature Review and Research Agenda for Information Systems Research. *Information Systems Frontiers*, 25, 955–969. (2023). <https://doi.org/10.1007/s10796-020-10096-3>
50. Rotar, O. Online student support: a framework for embedding support interventions into the online learning cycle. *Research and Practice in Technology Enhanced Learning*, 17, 2. (2022). <https://doi.org/10.1186/s41039-021-00178-4>
51. Cairney, P., Kippin, S. The future of education equity policy in a COVID-19 world: a qualitative systematic review of lessons from education policymaking. *Open Research Europe* (2024). <https://open-research-europe.ec.europa.eu/articles/1-78> last accessed on 4/11/2024.
52. Wilcox KC, Lawson HA. Advancing Educational Equity Research, Policy, and Practice. *Education Sciences*. 12(12):894. (2022). <https://doi.org/10.3390/educsci12120894>
53. Dignum, V. The role and challenges of education for responsible AI. *London Review of Education*, 19(1), 1–11. (2021). <https://files.eric.ed.gov/fulltext/EJ1297679.pdf> last accessed on 4/11/2024.
54. Thwe, W.P., Kálmán, A. Lifelong Learning in the Educational Setting: A Systematic Literature Review. *The Asia-Pacific Education Researcher*, 33: 407–417. (2024). <https://doi.org/10.1007/s40299-023-00738-w>
55. Shadiev R, Sintawati W, Kerimbayev N, Altinay F. Systematic Review (2003–2023): Exploring Technology-Supported Cross-Cultural Learning through Review Studies. *Sustainability*. 16(2):755. (2024) <https://doi.org/10.3390/su16020755>
56. Stanford University. Technological Innovations in Education. Center for Education Policy Analysis. (2024). <https://www.stanford.edu/innovation-experimentation-education-policy/> last accessed on 5/31/2024.
57. World Bank. Digital Development. (2020). <https://www.worldbank.org/en/topic/digitaldevelopment/overview> last accessed on 5/31/2024.
58. Federal Communications Commission. Emergency Broadband Benefit (2021). <https://www.fcc.gov/broadbandbenefit> last accessed on 5/31/2024.
59. MIT Media Lab. About the Media Lab. (2021). <https://www.media.mit.edu/about/> last accessed on 5/31/2024.
60. Branch, J.W., Burgos, D., Serna, M.D.A., Ortega, G.P. Digital Transformation in Higher Education Institutions: Between Myth and Reality. In: Burgos, D. (eds) *Radical Solutions and eLearning. Lecture Notes in Educational Technology*. Springer, Singapore. (2020). https://doi.org/10.1007/978-981-15-4952-6_3
61. OECD. OECD Future of Education and Skills 2030: Conceptual Learning Framework. (2019). https://www.oecd.org/education/2030-project/teaching-and-learning/learning/learning-compass-2030/OECD_Learning_Compass_2030_Concept_Note_Series.pdf last accessed on 5/31/2024.
62. European Commission. Erasmus+. (2021). <https://ec.europa.eu/programmes/erasmus-plus/> last accessed on 5/31/2024.
63. Sridharan, B., McKay, J., Boud, D. The Four Pillars of Peer Assessment for Collaborative Teamwork in Higher Education. In: Noroozi, O., De Wever, B. (eds) *The Power of Peer Learning. Social Interaction in Learning and Development*. Springer, Cham. (2023). https://doi.org/10.1007/978-3-031-29411-2_1
64. Herodotou, C., Sharples, M., Gaved, M., Kukulska-Hulme, A., Rienties, B., Scanlon, E., & Whitelock, D. Innovative Pedagogies of the Future: An Evidence-Based Selection. *Frontiers in Education*, 4, 113. (2021). <https://doi.org/10.3389/feduc.2019.00113>
65. Cheung, S.K.S., Kwok, L.F., Phusavat, K. *et al.* Shaping the future learning environments with smart elements: challenges and opportunities. *International Journal of Educational Technology in Higher Education*, 18, 16. (2021). <https://doi.org/10.1186/s41239-021-00254-1>

66. Papadopoulou K, Palaiologou N, Karanikola Z. Insights into Teachers' Intercultural and Global Competence within Multicultural Educational Settings. *Education Sciences*. 12(8):502. (2022). <https://doi.org/10.3390/educsci12080502>
67. Fernández-Batanero, J.M., Montenegro-Rueda, M., Fernández-Cerero, J. *et al.* Assistive technology for the inclusion of students with disabilities: a systematic review. *Educational technology research and development*, 70, 1911–1930. (2022). <https://doi.org/10.1007/s11423-022-10127-7>
68. Kricorian, K., Seu, M., Lopez, D. *et al.* Factors influencing participation of underrepresented students in STEM fields: matched mentors and mindsets. *International Journal of STEM Education*, 16. (2020). <https://doi.org/10.1186/s40594-020-00219-2>
69. Husic, D.W. Reframing sustainability initiatives in higher education. *Sustainable Earth Reviews*, 7, 5. (2024). <https://doi.org/10.1186/s42055-024-00076-9>
70. OECD. *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, OECD Publishing. (2012). <http://dx.doi.org/10.1787/9789264130852-en> last accessed on 5/31/2024.
71. Honkasilta, J.; & Koutsoklenis, A. International Perspectives on Inclusion in Education: Exploring Common Ground from Different Angles. *Education Sciences*, 14, 532. (2024). <https://doi.org/10.3390/educsci14050532>
72. OECD. *Trends Shaping Education 2019*. (2019). https://doi.org/10.1787/trends_edu-2019-en last accessed on 5/31/2024.
73. Engle, J., & Tinto, V. Moving beyond access: College success for low-income, first-generation students. Pell Institute for the Study of Opportunity in Higher Education. (2008). <https://files.eric.ed.gov/fulltext/ED504448.pdf> last accessed on 5/31/2024.
74. National Center for Education Statistics. Longitudinal studies program. (2021). <https://nces.ed.gov/surveys/hsls09/> last accessed on 5/31/2024.
75. Pascarella, E. T., & Terenzini, P. T. *How college affects students: A third decade of research* (Vol. 2). Jossey-Bass. (2005). <https://www.wiley.com/en-us/How+College+Affects+Students%3A+A+Third+Decade+of+Research-p-9780787910440> last accessed on 5/31/2024.
76. OECD. *Equity in Education: Breaking Down Barriers to Social Mobility*. OECD Publishing. (2018). <https://doi.org/10.1787/9789264073234-en> last accessed on 5/31/2024.
77. CAST. *Universal Design for Learning Guidelines version 2.2*. (2018). <http://udlguidelines.cast.org> last accessed on 5/31/2024.
78. UNESCO. *Education for Sustainable Development Goals: Learning Objectives*. United Nations Educational, Scientific and Cultural Organization. (2017). <https://unesdoc.unesco.org/ark:/48223/pf0000247444> last accessed on 5/31/2024.
79. Lozano, R., Ceulemans, K., & Scarff Seatter, C. Teaching organizational change management for sustainability: Designing and delivering a course at the University of Leeds to better prepare future sustainability change agents. *Journal of Cleaner Production*, 106, 205-215. (2015). <https://doi.org/10.1016/j.jclepro.2014.03.031>
80. World Economic Forum. *Ethics by Design: An Organizational Approach to Responsible Use of Technology*. (2020). <https://www.weforum.org/reports/ethics-by-design-an-organizational-approach-to-responsible-use-of-technology> last accessed on 5/31/2024.
81. Zhang, B. H., Lemoine, B., Mitchell, M., & Dietterich, T. G. Mitigating Unwanted Biases with Adversarial Learning. *Proceedings of the 2018 AAAI/ACM Conference on AI, Ethics, and Society*, 335-340. (2019). <https://doi.org/10.1145/3278721.3278779>
 Supemaw, C., & Reindorf, S., H. Effect of Technology Adoption on the Quality of Education among Schools in Switzerland. *Journal of Education*, 4(2): 59-67. (2021). <https://stratfordjournals.org/journals/index.php/journal-of-education/article/download/775/905/2294> last accessed on 5/31/2024.

Appendix

Table 1. Summary of Sources Screened & Excluded, Retrieved & Excluded, Assessed & Excluded, and Included.

Title	Authors	Year	Journal	Code
4 trends that will shape the future of higher education	El-Azar, D.	2022	World Economic Forum	I
A Politics of Intensity: Some Aspects of Acceleration in Simondon and Deleuze	Hui, Y., & Morelle, L.	2017	Deleuze Studies	I
A Sample of Gifted and Talented Educators' Attitudes About Academic Acceleration	Del Siegle, Hope E. Wilson, C. Little	2013	Journal of Advanced Academics	RE
A Systematic Review of AI-Driven Educational Assessment in STEM Education	Ouyang, F., Dinh, T.A. & Xu, W.	2023	Journal for STEM Education Research	I
A systematic review of educational online peer-review and assessment systems: charting the landscape	Babik, D., Gehringer, E., Kidd, J. et al.	2024	Educational technology research and development	I
A Systematic Review of Research on Personalized Learning: Personalized by Whom, to What, How, and for What Purpose(s)?	Bernacki, M.L., Greene, M.J. & Lobczowski, N.G.	2021	Educational Psychology Review	I
A Thousand Plateaus: Capitalism and Schizophrenia	Deleuze, G., & Guattari, F.	1980	University of Minnesota Press	I
Academic Acceleration	S. Assouline, Ann Lupkowski-Shopluk, N. Colangelo	2021	Critical Issues and Practices in Gifted Education	RE
Accelerating the Academic Achievement of Students Referred to Developmental Education (Assessment of Evidence Series)	Nikki Edgecombe	2011		SE
Accelerating writing achievement	R. Jesson	2013		SE
Acceleration and the College Student	S. Pressey	1944	The Annals of the American Academy of Political and Social Science	AE
Acceleration in the Academic Life-World	Filip Vostal	2016		AE
Acceleration, Automation and Pedagogy: How the Prospect of Technological Unemployment Creates New Conditions for Educational Thought	Sellar, S.	2019	Education and Technological Unemployment	I

Acceleration: Dispelling the myths with research and reality	L. Maher, Jonathon Geeves	2014	Australasian journal of gifted education	SE
Accelerationism: a timely provocation for the critical sociology of education	Sellar, S., & Cole, D.	2017	British Journal of Sociology of Education	I
Accelerationism: Adventures in Speed	Noys, B.	2022	Palgrave Handbook of Critical Posthumanism	I
Accelerationism: Capitalism and Schizophrenia	Williams, A.	2017	Columbia University Press	AE
Accelerationism: how a fringe philosophy predicted the future we live in	Beckett, A.	2017	The Guardian	I
ACCELERATIONISM'S QUEER OCCULTURE: "or, thinking according to the alien ovum of nature."	Sheldon, R.	2019	Angelaki	I
Advancing Educational Equity Research, Policy, and Practice	Wilcox, K.C., Lawson, H.A.	2022	Education Sciences	I
AI is transforming Google search. The rest of the web is next.	Simonite, T.	2016	Wired	I
Anti-Oedipus: Capitalism and Schizophrenia	Deleuze, G., & Guattari, F.	1972	University of Minnesota Press	I
Artificial intelligence in higher education: the state of the field	Crompton, H., Burke, D.	2023	International Journal of Educational Technology in Higher Education	I
Assessment of Learning Outcomes	Coates, H.	2015	The European Higher Education Area	I
Assistive technology for the inclusion of students with disabilities: a systematic review	Fernández-Batano, J.M., Montenegro-Rueda, M., Fernández-Cerero, J. et al.	2022	Educational technology research and development	I
Beyond Just Metrics: For a Renewed Approach to Assessment in Higher Education	Raffaghelli, J.E., Grion, V.	2023	Data Cultures in Higher Education	I
Bridging Digital Divides: a Literature Review and Research Agenda for Information Systems Research	Vassilakopoulou, P., Hustad, E.	2023	Information Systems Frontiers	I
Conceptualizing Innovation in Higher Education	Tierney, W.G., Lanford, M.	2016	Higher Education: Handbook of Theory and Research	I
Creativity and Critical Thinking	Ellerton, P., Kelly, R.	2021	Education in the 21st Century	I

Critique of Accelerationism	Gardiner, M.	2017	Theory, Culture & Society	I
Determinants of Innovation Culture amongst Higher Education Students	Mohd Roffeei, S. H., Yusop, F. D., & Kamarulzaman, Y.	2018	The Turkish Online Journal of Educational Technology	I
Digital Education Action Plan (2021-2027)	European Commission	2021	-	I
Discourses of artificial intelligence in higher education: a critical review	Not specified	Not specified	Not specified	AE
Effective database search strategies for systematic reviews	Bramer WM, de Jonge GB, Rethlefsen ML, Mast F, Kleijnen J.	2018	Journal of Medical Library Association	I
Effectiveness of problem-based learning methodology in undergraduate medical education: a scoping review	Trullàs, J.C., Blay, C., Sarri, E. et al.	2022	BMC Medical Education	I
Effects of Accelerated Instruction on Students	J. Kulik, Chen-Lin C. Kulik	1984	Review of Educational Research	AE
Ethics of Educational Technology	Moore, S.L., Ellsworth, J.B.	2014	Handbook of Research on Educational Communications and Technology	I
Expanding Higher Education in the UK: From 'System Slowdown' to 'System Acceleration'	A. Hodgson, K. Spours	2000	Higher Education Quarterly	RE
Factors influencing participation of underrepresented students in STEM fields: matched mentors and mindsets	Kricorian, K., Seu, M., Lopez, D. et al.	2020	International Journal of STEM Education	I
Fanged Noumena: Collected Writings 1987-2007	Land, N.	2011	Urbanomic/Sequence Press	I
Gamification of student peer review in education: A systematic literature review	Indriasari, T.D., Luxton-Reilly, A. & Denny, P.	2020	Education and Information Technologies	I
Guidelines for Developing an Academic Acceleration Policy. National Work Group on Acceleration	N. Colangelo, S. As-soulina, Maureen A. Marron	2010	Journal of Advanced Academics	AE
High-School Achievement of Accelerated Pupils	W. L. Wilkins	1936	The School Review	SE
Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review	Timotheou, S., Miliou, O., Dimitriadis, Y., Villagrà Sobrino, S., Giannoutsou, N., Cachia, R.,	2022	Education and Information Technologies	I

	Martínez Monés, A., & Ioannou, A.			
Innovative Pedagogies of the Future: An Evidence-Based Selection	Herodotou, C., Sharples, M., Gaved, M., Kukulska-Hulme, A., Rienties, B., Scanlon, E., & Whitelock, D.	2021	Frontiers in Education	I
Insights into Teachers' Inter-cultural and Global Competence within Multicultural Educational Settings	Papadopoulou K, Palaologou N, Karanikola Z.	2022	Education Sciences	I
Introduction: Real World Learning—Recalibrating the Higher Education Response Towards Application to Lifelong Learning and Diverse Career Paths	Morley, D.A., Jamil, M.G.	2021	Applied Pedagogies for Higher Education	I
Inventing the Future: Postcapitalism and a World Without Work	Srnicek, N., & Williams, A.	2015	Verso	I
Is critical thinking a future skill for business success: science mapping and literature review	Skrzek-Lubasińska, M. and Malik, R.	2023	Central European Management Journal	I
Is there a future for accelerationism?	Haynes, P.	2021	Journal of Organizational Change Management	I
Lifelong Learning in the Educational Setting: A Systematic Literature Review	Thwe, W.P., Kálmán, A.	2024	The Asia-Pacific Education Researcher	I
Make space: How to set the stage for creative collaboration	Doorley, S., & Witthoft, S.	2012	John Wiley & Sons	I
Malign Velocities: Accelerationism and Capitalism	Noys, B.	2014	Zero Books	I
Mapping research in student engagement and educational technology in higher education: a systematic evidence map	Bond, M., Buntins, K., Bedenlier, S. et al.	2020	International Journal of Educational Technology in Higher Education	I
On Deciding to Accelerate: High-Ability Students Identify Key Considerations	L. Dare, E. Nowicki, Susen Smith	2019	Gifted Child Quarterly	SE
Online student support: a framework for embedding support interventions into the online learning cycle	Rotar, O.	2022	Research and Practice in Technology Enhanced Learning	I

Parent Views on the Acceleration of Superior High-School Students	R. Jones, Joseph R. Baxter	1962	NASSP Bulletin	AE
Preparing for College Success: Exploring the Impact of the High School Cambridge Acceleration Program on U.S. University Students	Stuart Shaw, Magda A. Werno	2016	College and University	SE
PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation	Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., ... Straus, S. E.	2018	Annals of Internal Medicine	I
Privacy and data protection in learning analytics should be motivated by an educational maxim—towards a proposal	Hoel, T., Chen, W.	2018	Research and Practice in Technology Enhanced Learning	I
Project-Based Learning in Higher Education	Žerovnik, A., Nančovska Šerbec, I.	2021	Technology Supported Active Learning	I
Psychological adjustment in a college-level program of marked academic acceleration	N. Robinson, Paul M. Janos	1986	Journal of Youth and Adolescence	RE
Reframing sustainability initiatives in higher education	Husic, D.W.	2024	Sustainable Earth Reviews	I
Shaping the future learning environments with smart elements: challenges and opportunities	Cheung, S.K.S., Kwok, L.F., Phusavat, K. et al.	2021	International Journal of Educational Technology in Higher Education	I
Social Acceleration: A New Theory of Modernity	Rosa, H.	2013	-	I
Strategic Planning in Higher Education	Fumasoli, T.	2020	The International Encyclopedia of Higher Education Systems and Institutions	I
Systematic Review (2003–2023): Exploring Technology-Supported Cross-Cultural Learning through Review Studies	Shadiev R, Sintawati W, Kerimbayev N, Altinay F.	2024	Sustainability	I
Systematic review of research on artificial intelligence applications in higher education	Not specified	2019	Educational Technology Research and Development	AE
Ten-year longitudinal follow-up of ability-matched	M. Swiatek, C. Benbow	1991	Journal of Educational Psychology	RE

accelerated and unaccelerated gifted students				
The Accelerationist Manifesto	Mackay, R., & Avanessian, A.	2013	Urbanomic	AE
The Accelerationist Reader	Mackay, R., & Avanessian, A. (Eds.)	2014	Urbanomic/Sequence Press	RE
The Age of Earthquakes: A Guide to the Extreme Present	Shumon Basar, Douglas Coupland, & Hans Ulrich Obrist	2015	Penguin Books	SE
The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power	Zuboff, S.	2019	PublicAffairs	RE
The Blockchain and Kudos: A Distributed System for Educational Record, Reputation and Reward	Sharples, M., Domingue, J.	2016	Adaptive and Adaptable Learning	I
The Effects of Acceleration on High-Ability Learners: A Meta-Analysis	Saiying Steenbergen-Hu, S. Moon	2011	Gifted Child Quarterly	RE
The Four Pillars of Peer Assessment for Collaborative Teamwork in Higher Education	Sridharan, B., McKay, J., Boud, D.	2023	The Power of Peer Learning	I
The future of education equity policy in a COVID-19 world: a qualitative systematic review of lessons from education policymaking	Cairney, P., Kippin, S.	2024	Open Research Europe	I
The impact of COVID-19 on higher education around the world	Marinoni, G., Van't Land, H., & Jensen, T.	2020	International Association of Universities (IAU) Global Survey Report	I
The Positive Influence of Inquiry-Based Learning Teacher Professional Learning and Industry Partnerships on Student Engagement With STEM	Attard, C., Berger, N., & Mackenzie, E.	2021	Frontiers in Education	I
The Posthuman	Braidotti, R.	2013	Polity Press	AE
The Posthuman Condition: Ethics, Aesthetics and Politics of Biotechnological Challenges	Braidotti, R.	2013	Polity Press	AE
The PRISMA 2020 statement: An updated guideline for reporting systematic reviews	Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C.,	2021	BMJ	I

	Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., ... Moher, D.			
The professors behind the MOOC hype	Kolowich, S.	2012	The Chronicle of Higher Education	I
The Real Problems with Academic Acceleration	W. T. Southern, E. Jones	1992	Gifted Child Today	AE
The Review of Higher Education	Not specified	Not specified	The Review of Higher Education	RE
The role and challenges of education for responsible AI	Dignum, V.	2021	London Review of Education	I
The role of peers on student ethical decision making: evidence in support of the social intuitionist model	Ohreen, D.	2021	International Journal of Ethics Education	I
The Stack: On Software and Sovereignty	Bratton, B. H.	2016	MIT Press	RE
The use of technology in higher education teaching by academics during the COVID-19 emergency remote teaching period: a systematic review	Sum, M., Oancea, A.	2022	International Journal of Educational Technology in Higher Education	I
The Use-Value of Real-World Projects: Children and Local Experts Connecting Through School Work	Rheingold, A., & Seaman, J.	2017	Dialogic Pedagogy: A Journal for Studies of Dialogic Education	I
The Utopia of Rules: On Technology, Stupidity, and the Secret Joys of Bureaucracy	Graeber, D.	2015	Melville House	SE
Towards Evidence-Based, Data-Driven Thinking in Higher Education	Meleg, Á., Vas, R.	2020	Electronic Government and the Information Systems Perspective	I
Virtual reality for health professions education: Systematic review and meta-analysis by the digital health education collaboration	Kyaw, B. M., Posadzki, P., Dunleavy, G., Semwal, M., Divakar, U.,	2019	Journal of Medical Internet Research	I

	Viswasom, A., ... Car, L. T.			
--	---------------------------------	--	--	--

Notes: the codes are SE for screened & excluded, RE for retrieved and excluded, AE for assessed and excluded, and I for included.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

