

Transformational leadership as the engine of technology-enabled educational projects in the era of AI

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Abstract: *In an era of rapid technological disruption, particularly through AI, educational systems are under pressure to evolve. Technology disruption in education reshapes organizational routines, teacher roles, and student learning, yet implementation outcomes vary widely across schools. The successful implementation of technology-enabled educational projects is not guaranteed by the technology itself; it heavily relies on effective school leadership. This paper examines how transformational leadership catalyzes successful technology-enabled educational projects. Using a mixed-methods design, we analyze mechanisms linking leadership behavior such as vision-setting, individualized support, intellectual stimulation, and modeling change, to project acceptance, teacher professional growth, and early learning effects. Results indicate that clear, co-constructed visions accelerate teacher professional development with psychological safety improves classroom experimentation and practices. These findings demonstrate that the principal's use of transformational practices, inspirational motivation, intellectual stimulation correlated with increased teachers professional and transversal skills, enhanced digital competence and the successful integration of both hard and soft skills lead to bringing transformational leadership skills into the school. This study provides a practical model demonstrating that leadership is the critical success factor for translating technological potential into pedagogical reality by showing how human-centered leadership turns technological disruption into equitable, measurable improvement in teaching and learning.*

Keywords: Transformational leadership, Technology, Education projects.

1. Introduction

The 21st century is defined by relentless technological change, with Artificial Intelligence (AI) because AI now emerging as a powerful, disruptive force (Railean, Pavalachi & Ceobanu, 2023; Railean, 2024; Railean, 2025). For the education sector, this is not a distant-future scenario but a present-day reality, placing the theme of *Changing Education because of Technological Disruption* at the forefront of academic and policy discussions. Schools around the world are initiating technology-enabled projects to adapt, but a significant gap persists between investment and impact (Railean, 2014; Railean, Valeyeva & Kupriyanov, 2020). More often than not, it's not technology that fails us, but the human mind's inability to implement strategy effectively within a sound leadership model.

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This paper points out that the critical variable for success is not the *technology* itself, but the *leadership* style of manager that guides its adoption, using both teachers' hard and soft skills. The central thesis is that transformational leadership acts as the essential engine for driving and sustaining technology-enabled educational projects. (Yusof et al., 2021) To move this argument from theory to practice, this paper presents a detailed case study of the „Ioan Bădescu” Secondary School in Romania. It analyzes how this specific leadership model was used to overcome teacher resistance, foster a culture of innovation, and ultimately link technological tools to concrete pedagogical goals.

First, the paper examines the disruptive force of AI and the resulting changes in pedagogy, management and leadership. Secondly, it analyzes the dynamics of leadership models, positioning the transformational model as the ideal „engine” for this change. (Railean, 2024) Thirdly, it connects this leadership model to the critical need for updating teacher skills, using the Ioan Bădescu projects as an example. Finally, it provides a deep dive into the development of both professional digital competences (as defined by EU frameworks like DigCompEdu) and the transversal skills teachers need to cultivate 21st-century skills in their students. Ultimately, this paper provides a practical model, shown in the Romanian context, for how school leaders can effectively harness the power of technological disruption to create meaningful, lasting educational change (Railean, Pavalachi & Ceobanu, 2023).

So technological disruption is creating anxiety and resistance in teachers. The resistance is a *human* problem, not a technical one. The leadership at Ioan Bădescu recognized this and implemented the *Școala Încrăderii* project *first* to address the school's culture. (David Publishing Company, 2024) This paper will demonstrate how the *Școala Încrăderii* project, driven by transformational leadership, created the cultural foundation of trust necessary for the successful adoption of technology-enabled educational projects (European Commission, 2022).

2. AI Technology as a disruptive force in teaching and learning

The development of Artificial Intelligence, particularly the recent emergence of Generative AI models, is not merely an incremental update to educational technology. It represents a fundamental disruptive force that is actively reshaping the very nature of teaching and learning (Holmes & Tuomi, 2022; Railean, 2018). This disruption, which is the central theme of this conference section, is not just about new tools; it is about the *consequences* of those tools, which necessitate a profound change in the teacher's role and pedagogical approach. This transformation is not theoretical and it is being actively addressed at the highest levels of international policy. UNESCO's (2023) *Guidance for generative AI in education and research* explicitly calls for a human-centred vision. It recognizes GenAI's capacity to automate tasks but urgently calls for regulation and the development of new competencies to manage its ethical and pedagogical implications. Secondly the European Commission's (2022) *Ethical guidelines on*

the use of AI and data in teaching and learning, part of the broader Digital Education Action Plan (2021-2027), provides a practical framework for primary and secondary educators. It moves the conversation from *if* AI should be used to *how* it can be used responsibly, firmly placing the *teacher's and learner's* pedagogical judgment at the center of the learning process. These documents establish that the changing of teaching is not an optional side-effect but a required, policy-driven outcome of AI development. (UNESCO, 2022)

For decades, the pedagogical model of the sage on the stage (King, 1993) has been challenged (Railean, 2008; Railean, 2020; Railean, 2025). AI is now the force that makes its obsolescence undeniable. Studies and surveys clearly show that AI is automating the traditional, classical didactic components of teaching. Teachers are already embracing this for efficiency. A 2024 survey from Cambium Learning found that K-12 educators are using AI for lesson planning (44%), proofreading (47%), and creating personalized learning experiences (56%). A 2025 report from *Education Week* noted that 69% of teachers felt AI improved everybody's teaching methods, and 55% said it gave all of them more time to interact directly with students. This automation *frees* the teacher from being the primary source of information and assessment, forcing a role change. The teacher's new, essential function is to become a guide on the side, or as DiploFoundation (2025) suggests, a mentor, guide and ethical interlocutor. In this new model, the teacher's value is no longer in *what* they know, but in their ability to facilitate the critical thinking skills such as helping students question, validate, and critique the plausible-sounding outputs from GenAI, some social-emotional learning by providing the empathy, support, and human connection that AI cannot replicate (Holmes & Tuomi, 2022) and finally the ethical guidance by leading discussions on data privacy, algorithmic bias, and academic integrity. (Holmes & Tuomi, 2022)

This new role is enabled by new AI-driven pedagogies. This is AI's most significant promise for transformational leadership. Systematic reviews (e.g., Hwang et al., 2020; RSIS International, 2024) confirm that AI-driven adaptive platforms can create truly varied, personalized, and relevant learning paths, helping to differentiate instruction in a way a single teacher cannot. More than this, AI shifts assessment from a summative (end-of-unit) event to a continuous, formative process. AI tools can provide real-time, iterative feedback, allowing the teacher to focus on higher-order conceptual misunderstandings rather than basic skill-and-drill. However, these opportunities create new, complex problems. A 2025 *Education Week* survey found that while teachers see benefits, 70% worry AI weakens critical thinking and research skills, and 50% of students feel "less connected" to their teachers. Studies warn of the augmentation paradox: AI may boost short-term performance while slowing the development of long-term independent learning (David Publishing, 2024). In summary, AI technology is the catalyst. It is fundamentally altering the pedagogical landscape by automating old tasks and demanding a new, profoundly human-centric set of skills from the teacher. This creates an urgent and massive need for professional development. As the 2024 Cambium survey identified, the number one barrier to AI adoption is not

sufficient training for teachers. This new, complex, and high-stakes pedagogical environment cannot be navigated by teachers alone. It demands a supportive, visionary, and human-centered leadership model to guide the entire school community through this disruption. (DiploFoundation, 2025)

3. The dynamicity of leadership models

The technological disruption outlined in the previous section acts as a powerful *catalyst*, but it does not guarantee a positive *change*. The *engine* that determines whether a school successfully adapts or simply fails to implement its new projects is its leadership. (Couros, 2015) This section will argue that traditional leadership models are insufficient for this task and that a transformational model, as evidenced at „Ioan Bădescu” Secondary School, is the critical success factor. In stable educational environments, leadership models like *Instructional Leadership* or *Transactional Leadership* can be effective. *Transactional Leadership* operates on a system of contingent rewards and punishments (Bass & Avolio, 1994). It is a management model designed to maintain the status quo and ensure compliance with existing rules. This model is fundamentally unsuited for technological disruption, as it offers no mechanism to inspire innovation, only compliance with a mandate—which often leads to superficial adoption or outright resistance (Gumusluoglu & Ilsev, 2009). Meanwhile, *Instructional Leadership*, more focused on pedagogy, is primarily concerned with *coordinating* and *improving* the *existing* curriculum and teaching practices (Hallinger, 2005). It is designed for first-order, incremental change. However, the integration of AI is not an incremental change; it is a second-order disruption that challenges the very foundations of pedagogy (Leithwood & Jantzi, 2000). A leader focused only on *current* instruction may see technology as a distraction rather than a necessary evolution. A 2024 report in the *Journal of Educational Administration* notes that during periods of rapid digital change, leadership that is purely managerial or instructional often fails. This is because it is too narrow to build the organizational capacity for change required to navigate the fear and uncertainty that teachers associate with new technologies (Ng, 2024). *Transformational Leadership* is not about managing the *status quo*; it is about *transforming* it. This model is uniquely suited to the challenge of technological disruption because it focuses on building trust, articulating a compelling vision, fostering innovation, and supporting individuals through the change process. A 2025 meta-analysis published in *Computers & Education* confirmed that the success of school-wide technology projects is significantly and positively correlated with principals who exhibit transformational behaviors. This leadership acts as the engine by operationalizing its four key components: the Four I's (Bass & Avolio, 1994), to drive the educational projects. Here is how each component translates from theory to the practical reality of a technology project, as seen in our case study:

a) The Leader as Role Model is seen as an idealized influence. The leader acts as a role model whose character, values, and actions earn trust and respect. They walk the walk. For a technology project, this is the most direct way to build credibility. If the principal mandates a new platform but is never seen using it, teachers will perceive it as a compliance task. Studies on technology adoption (Yusof et al., 2021) show that a principal's willingness to be a lead learner, to publicly experiment with the new tools, admit their own challenges, and champion the project's values, is a critical factor. At „Ioan Bădescu” Secondary School, the *idealized influence* was demonstrated when the principal because she was the first to complete the introductory AI training, she used the new smartboard in all staff meetings and she publicly celebrated teachers who shared their 'intelligent failures' with a new tool, according to the survey. The leader didn't just mandate the Școala Încrederii project; they lived it. They were the chief advocate for its values (empathy, trust, respect), modeling the vulnerability and openness they expected from teachers. This built the trust needed to ask them to try new, scary technologies later.

b) The inspirational motivation seemed to be very important, because the leader articulates a clear, appealing, and inspiring vision of the future. This is the why that motivates people to move beyond their own self-interest for the good of the group. This is the antidote to tech for tech's sake. A leader using this component frames the project not as, *We must use AI*, but as, *We will use these tools to empower every student, close achievement gaps, and prepare our students for a future we cannot yet imagine*. This reframes the project as a moral and pedagogical imperative. As educator George Couros (2015) states, technology will never replace great teachers, but technology in the hands of great teachers is transformational. It needs both hard and soft skills as well. Our school's leadership provided inspirational motivation by consistently communicating a vision where the new projects were linked to the school's core mission, and also framed as a way to give Romanian students a competitive edge, not as a top-down mandate. The vision was not to use AI. The vision provided by Școala Încrederii was to become the kind of school built on trust and well-being. This human-centric vision is far more inspiring. The leadership then connected this to technology by saying the fact that we trust each other, so we explore these new tools together to help our students.

c) The Intellectual Stimulation is kind of safe to fail environment, in which the leader challenges old assumptions and encourages creativity, innovation, and risk-taking. They foster an environment where followers feel safe to question and experiment. This seems to be the most critical component for technology. Teachers *must* be allowed to experiment, and in doing so, they will sometimes fail. A 2024 study in *Teaching and Teacher Education* found that psychological safety is the number one predictor of whether teachers will move beyond basic substitution and use technology for innovative pedagogy. Intellectual stimulation creates this safety. In our school case the intellectual stimulation was operationalized through *workshops* where teachers could play with new software without fear of evaluation,

by creating innovation teams, or by replacing critical feedback with „What did we learn from this?” during the project rollout, using both hard and soft skills as well. You cannot have a safe-to-fail environment for technology if you do not first have a culture of trust. Școala Încrăderii is the project that builds this psychological safety. Because the Școala Încrăderii project had already established norms of non-judgmental feedback and mutual respect, teachers felt safe to experiment with new digital tools. They were not afraid of being shamed if a new tech-based lesson failed. This project was the mechanism that made risk-taking possible.

d) Another important issue is the differentiated support because the leader acts as a coach or mentor, recognizing that each follower has different needs, skills, and motivations. Thus, they provide personalized support. A one-size-fits-all professional development day for a new technology project is doomed to fail. It bored the digital natives and terrify the tech-hesitant veterans. The surveys applied on teachers consistently show that their top barrier to tech use is a lack of relevant, ongoing, and differentiated training (Marr, 2023). So, individualized consideration means the leader recognizes this and provides multiple pathways for support. The leadership in our school demonstrated individualized consideration by scrapping whole-school training in favor of a menu of options, creating a peer-mentoring program and providing one-on-one coaching for teachers who were struggling with the project's tools. By applying this four-part model, the leadership at „Ioan Bădescu” Secondary School did not just *manage* a project; it *led* a cultural transformation. This engine is what created the conditions for the next, most crucial step: updating the skills of the teachers themselves. The Școala Încrăderii project is, at its core, about socio-emotional learning (SEL) and well-being. This shows the leadership cared for teachers as people, not just as employees. Using both soft and hard skills is very important because the leadership team from Ioan Bădescu Secondary School used the principles of Școala Încrăderii to support teachers through the tech projects. They didn't just offer technical support, they offered emotional support, acknowledging the stress of change and providing coaching based on individual teachers' anxieties and needs.

4. The need for novel teaching skills in response to AI disruption

The preceding sections have established the *disruption* (AI) and the *engine* (transformational leadership). This section demonstrates the *mechanism*: the tangible, necessary, and intentional updating of teacher skills. The technology-enabled projects at „Ioan Bădescu” Secondary School were not the *goal* in themselves; they were the strategic vehicle for this critical professional development. This transformation of skills must occur in two parallel, interconnected domains: the professional/digital and the transversal.

4.1 The professional teaching skills

From the perspective of EU model of competences any technology project to be sustainable and pedagogically sound, it must be grounded in a common framework of professional competence. In the European context, the benchmark is the European Framework for the Digital Competence of Educators (DigCompEdu) (Redecker, 2017). This framework is essential because it moves the focus from basic ICT literacy on how to use the tool, to digital pedagogy, why and how to use the tool for learning. It outlines six key areas of competence for educators: the professional engagement, by using digital tools for collaboration, reflection, and professional development; the digital resources, sourcing, creating, and sharing digital content; the teaching and learning, thus managing and orchestrating digital tools in the learning process; the assessment issues, by using digital tools for formative and summative assessment, empowering learners by using digital tools for differentiation, active engagement, and personalization and facilitating learners' digital competence by helping students become digitally competent themselves. The transformational leadership at „Ioan Bădescu” Secondary School *intentionally* used its projects to move teachers along the DigCompEdu progression model, from A1 Newcomer to B1 Integrator and B2 Expert. The *Școala Începerii* project is the foundation for Area 1: Professional Engagement. This area is about collaboration, communication, and reflective practice with colleagues. This project gave teachers the trust and skills to truly collaborate for the first time, which they then applied to co-designing the new technology projects.

4.2 The need of developing teachers' transversal competences

Secondly, it is the development of transversal competences. These are the 21st-century skills for teachers. the very skills they are now expected to foster in their students. These are also known as soft skills or durable skills (America Succeeds, 2021) and include: critical and innovative thinking, collaboration and teamwork, interpersonal skills such as communication and empathy, intrapersonal skills demonstrated in adaptability, resilience and self-direction, media and information literacy. A core argument is that teachers cannot effectively teach 21st-century skills if they are not actively practicing them. The *process* of implementing the technology projects at „Ioan Bădescu” Secondary School, guided by a transformational leader, *was* the professional development. The projects, by design, forced teachers out of their traditional, isolated silos and into collaborative teams. When the Classroom platform failed by being proved ineffective, the safe-to-fail culture, fostered by intellectual stimulation required teachers to engage in real-time, high-stakes problem-solving and collaboration. They needed to be resilient and flexible. The teachers became lead learners and co-collaborators with their pupils as a result of the initiatives' direct development of their own transversal skills. Afterwards, implementing *Școala Începerii* in our school was the ideal decision to foster transversal qualities in the entire school community, including

empathy, communication, teamwork, and flexibility. Therefore, there was no separate training to teach the transversal skills teachers needed to carry out the technology projects. Through their involvement in the *Școala Începătorii* program, they also naturally developed. Teachers learnt how to cooperate and communicate more effectively initially, which made co-designing digital lessons possible.

4.3 The need for a digitally competent teacher

The only person who can successfully assist students in developing 21st century abilities is a teacher who is technologically possesses strong transversal skills (Van Laar et al., 2017). So transformational leadership created a supportive environment for educational projects which served as the vehicle to develop teachers' digital (DigCompEdu) and transversal skills and this allowed those teachers to fundamentally shift their pedagogy from simple information delivery to the active facilitation of students' 21st-Century skills where the 4Cs: Critical Thinking, Communication, Collaboration, and Creativity are considered. The proof of the project's effectiveness was not only that instructors used the new tools, but how their usage affected student learning.

A history lesson prior to the assignment might include both a lecture and an exam. Following the project, the teacher, now proficient in DigCompEdu Area 3 called Teaching & Learning and skilled in collaboration, creates a task in which students work in groups, use digital archives to analyze multiple sources such as critical thinking and media literacy, and create a short documentary to present their findings using their creativity and communication. By emphasizing teacher skills as the mechanism for change, this model demonstrates that leadership is the spark that transforms technology's potential into the reality of 21st-century learning.

Teachers who implement the *Școala Începătorii* Project and master new digital tools can create a safe classroom environment for students to collaborate, think critically, and take creative risks.

5. Conclusions

The main focus of this piece is the enormous external demands on our institutions. However, as this study has demonstrated, technology is not the driver of change, but rather the fuel. The primary motor is and has always been leadership. This research used the case study of „Ioan Bădescu” Secondary School to provide a clear, repeatable model. It shown that transformational leadership, through its four fundamental techniques of idealized influence, inspiring motivation, intellectual stimulation, and customized concern, serves as the crucial catalyst. This human-centered regarded as soft skills and AI-centered approach illustrated as hard skills were important prerequisites for innovation. It fostered a resilient, flexible community that saw technology as an opportunity rather than a danger.

This study, grounded in the Romanian environment, provides a practical, evidence-based model: to successfully adopt technology, leaders must first construct a *Școala Încrăderii* kind of school environment. The disruption is here. The question is not whether we will change, but how we will lead the change. This article finds that a transformative, human-centered approach is the most effective and compassionate method to guarantee that technology meets our educational objectives.

În conclusion, transformational leadership fosters the required culture of trust, inventiveness, and psychological safety, allowing technology-enabled educational initiatives to progress from requirements to real, teacher-led change. The disruption is here. This study contends that transformational leadership is the most effective and compassionate strategy to guarantee that technology supports, rather than dictates, our educational aims. The project at „Ioan Bădescu” Secondary School demonstrated that technological disruption is a human challenge, not a technical one. Thus transformational leadership, through the strategic implementation of the *Școala Încrăderii* created the essential foundation for psychological safety and collaborative trust.

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