

Entrepreneurship and Creativity in Education: Why Current European Educational Reforms Are Aiming in the Opposite Direction?

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Abstract

The paper problematizes current European educational reforms that, under the agenda of European qualification framework, aim at establishing occupational and qualification standards. While providing a mechanism for measurement, evaluation, and comparison of qualifications and learning outcomes between the state members, enabling permeability in education for EU citizens in and across the member states, it is also creating an overly rigid, slow, traditional, and bureaucratically burdened system of education that cannot address the market and societal needs for extremely fast transformations and adaptations required by 4th industrial revolution (4IR). On one side, 4IR requires innovative and creative approaches from education stakeholders, dedicated to providing highly transversal skills with emphasis on critical, entrepreneurial, and creative thinking for majority of occupations that do not exist at present time and even cannot be anticipated, regarding necessity for a few changes in technological ecosystem and even of professions in an individual's course of life. On the contrary, the current educational reforms with top-down approach aim at standardization of present occupations and formalization of qualification framework that overly predefines educational goals, thus diminishing creative and entrepreneurial potential of educational stakeholders and prolonging adaptation to 4IR. There is a justified concern that the key words in European educational strategies such as creativity, innovation, entrepreneurship, autonomy, and responsibility of stakeholders have only nominal meaning with little potential for real impact. The aim is to raise awareness and encourage discussion about these discrepancies, corroborating it with examples and experiences from our adult learning institution.

Keywords: Educational Reforms, Fourth Industrial Revolution (4IR), European Qualification Framework (EQF), Croatian Qualifications Framework (CQF), Occupational Standards, Qualification Standards, Creativity in Education, Entrepreneurship in Education, Holistic Learning

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Introduction

The Fourth Industrial Revolution (4IR) is transforming global economies and societies at an unprecedented pace, demanding rapid adaptation and innovation across all sectors, particularly in education. This revolution necessitates a workforce equipped with highly transversal skills such as critical, entrepreneurial, and creative thinking. Despite these pressing needs, current European educational reforms, particularly those aligned with the European Qualifications Framework (EQF), appear misaligned with the dynamic demands of the 4IR.

This paper aims to critically examine the discrepancies between the rapid transformations necessitated by 4IR and the current European educational reforms, with a specific focus on Croatia. By analyzing the recent educational policies and reforms within the Croatian context, this paper highlights the potential pitfalls of a rigid, top-down approach that prioritizes standardized outcomes over creative and entrepreneurial education. Despite the largest investment in education in modern Croatian history (an investment cycle of 2.7 billion euros is launched, from kindergartens to universities) and strategic priorities outlined in Croatia's *National Development Strategy until 2030* (NN 13/2021), which emphasizes education as one of the key goals, there are substantial objections to the implementation of reforms, particularly in the preschool curriculum, vocational secondary education, and adult education sectors. The paper points out the insufficient adaptability of EQF to new job markets driven by AI and technological advancements, as well as argues that the current system's emphasis on standardization and evaluation is at odds with the intrinsic nature of learning.

Drawing from the experiences of the adult learning institution *Callegari – Italian School of Fashion and Design* in Croatia, this paper argues for a more flexible, bottom-up approach to educational reforms, advocating for more autonomy and trust in educators, a greater focus on the learning process, and fostering an environment that values creativity, innovation, and lifelong learning. This shift would better align educational outcomes with the rapidly evolving needs of the economy and society.

Discrepancies Between 4IR Requirements and the Croatian Qualifications Framework (CQF)

The Fourth Industrial Revolution has significantly disrupted the labor market, necessitating a workforce skilled in critical, entrepreneurial, and creative thinking. According to the *McKinsey Global Institute report* (Ellingrud et al., 2023), the US labor market experienced 8.6 million occupational shifts during the pandemic (2019–22), 50 percent more than in the previous three-year period, with projections suggesting that up to 30% of hours currently worked across the US economy could be automated by 2030, and that an additional 12 million occupational transitions may be needed by 2030. In addition to many declining occupational categories, projections are that new technologies driven by AI will generate millions of new jobs and occupations in the future. This necessity for few changes in the technological ecosystem and in professions during an individual's course of life, requires us to focus in education on highly transversal skills, and to educate today for occupations that do not exist at present and cannot even be anticipated yet.

In this context, the rigid, time-consuming and bureaucratically burdened Croatian Qualifications Framework (CQF), strongly emphasizing its alignment with the European Qualification Framework (EQF), appears ill-suited to meet these dynamic demands. The CQF's emphasis on predefined educational goals, both in terms of overall top-down approach and in

the number of prescribed details, diminishes the creative and entrepreneurial potential of educators and students alike. In our on-going educational reform, aiming at the standardization of present occupations and formalization of the qualification framework, we are witnessing the inability to accommodate to 4IR requirements and to keep up with the speed of changes in the labor market. Instead of boldly and creatively envisioning new occupations and qualifications, we are oriented on standardizing and formalizing the existing ones (the same ones that are most probably declining and vanishing). Because standardization/evaluation and creativity/entrepreneurship inherently lay on the opposite poles of human endeavors, each being an adaptive and desirable response at certain times (creativity/entrepreneurship in times of transformation and revolution, and standardization/evaluation in times of steady and predictable pace), the 4IR and CQF show themselves as poorly coincidental human ventures, raising great concerns in many educational stakeholders, making it necessary to raise the awareness and encourage the discussion about these discrepancies.

Discrepancies Between *National Development Strategy of the Republic of Croatia Until 2030, Including National Strategy of Education, Science, and Technology*, and Current Educational Reforms/Policies

Due to many examples of discrepancies between claims in educational strategies and actual educational policies, there is a justified concern among the educational stakeholders that the key words in European educational strategies such as creativity, innovation, entrepreneurship, autonomy and responsibility of stakeholders have only nominal meaning with little potential for real impact.

Although the Croatian *National Strategy of Education, Science, and Technology* (NN 124/2014) as its basic principle cites the autonomy of all institutions in the field of education and science, as well as the autonomy of all employees, our institutions in on-going educational reforms/policies exclusively use top-down approach. Almost everything is predefined in CQF (sets of learning outcomes and individual outcomes, CSVET points/number of hours necessary for the acquisition of learning outcomes, evaluation procedures and examples, even teaching topics since they must strictly correspond to predefined learning outcomes), therefore, teachers and school principals are reduced to technical operatives. Although the Croatian *National Strategy of Education, Science, and Technology* (NN 124/2014) aims at “strengthening creativity and innovation at all levels and in all types of education”, in educational practice we see all elements of standards of qualification being placed at the level of legal obligation and immutability. For example, in a classroom teacher cannot choose particular learning outcome to focus on through teaching, instead, he/she must take outcomes as a complete set; he/she must devote exactly the number of teaching hours as specified; he/she is even discouraged from using own methods of evaluation and specific exam tasks, and instead should use the predefined ones, etc. The entire mandatory methodology (ASOO, 2022) was developed for the development of adult education programs, not with recommendations and guidelines, but with directives which diminish the creative, innovative, and willing engagement of teachers and principals. Absurdly, although some elements of standards are purely developed, even if we have a consensus on this matter, they cannot be changed as long as the standard is in force, regardless of their ineffectiveness and usefulness. Furthermore, although *National Strategy of Education, Science, and Technology* (NN 124/2014) promises to ensure horizontal and vertical permeability in the educational system, in practice advanced training programs in adult education are currently available only to individuals who have completed related secondary vocational schools (again, contrary to 4IR requirements, and contrary to educational priorities claimed in *National Development Strategy* (NN 13/2021) to increase the ability of the

workforce to adapt to rapid changes). In addition, adult learning educational programs intended for post-secondary education need to be aligned mostly with standards of qualifications developed specifically for secondary vocational education, thus becoming only a small fragment of secondary vocational education. Moreover, in practice we see such policy leading to a paradox of entering and exiting educational programs with the same, sometimes even lower, level of qualification, showing us once again that there is no adequate place for adult learning in the CQF. Finally, despite national agenda to promote lifelong learning and increase the number of adults participating in adult education paired with substantial EU funding, in practice we see pumping quantity, through low amounts of educational vouchers given to a large number of adults, at the expense of quality (consequently reducing the value of education and the competitiveness of adult learning institutions).

Similar discrepancies between national strategies and educational reforms/policies can be seen in preschool curriculum. As an example, let's look at the two parallel events in 2024 in Croatia: *Proposal of the National Preschool Curriculum* (MZO, 2024) envisioning an integral nine-year compulsory education and bringing curriculum aimed at reaching and evaluating the standards of expected competences in preschool children, and *Oscar of Knowledge Award*, the biggest and most prestigious award given to students in Croatia for excellent results in national and international competitions (organized by the Education Agency, with the support of the Ministry of Science, Education and Youth, and the Croatian Union of Counties). Although, according to *National Development Strategy* (NN 13/2021), one of the priorities in the field of education policy is encouraging and rewarding innovative, creative, and enterprising endeavors of educational staff and students, the first Croatian kindergarten team that ever competed at the international robotics competition and won 3rd place at the *European RoboCup Junior 2023* (thus innovating robotics curriculum and teaching methodology in preschool), received no *Oscar of Knowledge Award*, simply because they were preschoolers and not schoolchildren. In other words, they were not considered a part of the integral nine-year compulsory education (even though the competition category was *OnStage First Steps* for 5 to 9-year-old children), which contradicts not only the *Proposal of the National Preschool Curriculum* (MZO, 2024), but also the objectives from *National Strategy* (NN 124/2014) of „complete system of education that connects all levels and types of education and research into a harmonious and a transparent whole based on common positive values, principles and goals.”

In vocational secondary schools, through introduction of modular teaching (from school year 2025/2026) (MZO, 2024), aiming at moving away from the traditional class-hour-subject system, reinforcing the cooperation between teachers and promoting interdisciplinary cooperation, again, contrary to the claims in educational strategies, we see the exclusive use of top-down approach with overly prescribed and rigidly defined forms of cooperation, while true cooperation is based on personal, authentic contact between involved persons and through their unique competencies and ideas. In spite of claims of autonomy and participation of stakeholders in educational reforms, in practice we see only a month-long public online consultation on extensive curricula that has been developed by the national educational agency for the last six years (a total of 148 curricula and a huge volume of pages: encompassing over 500 pages for stand-alone general education subjects alone, 900 pages for modules for general education subjects, and several hundred pages for each individual vocational curriculum). Also in vocational secondary schools, there is a concern about vertical permeability of students in the educational system. With integration of several subjects (such as Physics, Biology, or Chemistry) into modules and sets of learning outcomes with vocational subjects, and reduction of the general education component of the curriculum, especially its social-humanistic component, there is a concern about students' ability to systematically master the subject

material and their chances of success in the state matriculation exam necessary for entering university level education (there are a significant number of vocational secondary school students aspiring to earn applied university level degrees).

Discrepancies Between the True Nature of Learning/Meaning of Teaching, and Current Educational Objectives and Practices

The *Proposal of the National Preschool Curriculum* (MZO, 2024) to increase compulsory preschool hours from 250 to 700 annually, as an attempt to address the problem of the increasing number of postponements of enrolment in the 1st grade of elementary school (currently every tenth child in Croatia is not ready for school, even five times more than 20 years ago), introduces a school-like curriculum into kindergartens focused on educational expectations, content, and evaluation. This approach risks reducing the intrinsic value of play and the developmental benefits it offers. Moreover, instead of providing targeted professional interventions to solve detected problems of insufficiently developed pre-language, graphomotor and social skills, difficulties in attention and concentration, delays in speech development, motor difficulties, emotional immaturity, we, paradoxically, bring school to children who are initially not ready for school, thus negatively impacting children's development.

In the agenda of EQF and concomitant CQF, there is a general problem of educational focus on the acquisition of learning outcomes and evaluation that neglects the intrinsic and process-oriented nature of learning, present in all educational levels – from preschool, through elementary and secondary school, up to adult education. To a large extent, learning is a process, immersed in the dimension of subjective experience which in principle escapes the predefined outcomes (Recalcati, 2014). Learning is more than just a means to acquire skills, it is an intrinsic craving for knowledge and the expansion of individuals' horizons. The current system's emphasis on evaluation and comparison undermines the deeper purpose of education, which is to foster a passion for knowledge and personal growth. Likewise, teaching is more than a content and expectation, it is a matter of contact between the teacher and the pupil. Effective education, thus, transcends standardized learning objectives and measurements, emphasizing the subjective experience of learning and the dynamic interaction between teachers and students. Therefore, new, different educational agendas are necessary that consider these important and often neglected aspects of learning and teaching.

Conclusions

Main Findings

There are significant misalignments between current European (and concomitant Croatian educational reforms), and the dynamic requirements of the Fourth Industrial Revolution (4IR). The Croatian Qualifications Framework (CQF) is overly rigid and bureaucratic, limiting the adaptability and creativity necessary to meet the rapidly evolving labor market demands driven by new technologies. Moreover, comprehensive nature of qualification standards, which are legally binding and immutable, stifles creativity and innovation capacity among educators, preventing them from envisioning new occupations and qualifications. The focus on standardized outcomes and evaluations limits the potential for personalized and innovative teaching methods.

There are many discrepancies between objectives of national educational strategies, and current educational reforms/policies. Contrary to emphasis on autonomy and innovation, the top-down approach in educational reforms reduces educators to mere implementers of predefined policies that fail to accommodate the diverse needs of learners. There is an overall lack of participation of majority of educational stakeholders in shaping of educational reforms, which is an important prerequisite for their acceptance and implementation. The rigid structure of adult education programs limits vertical and horizontal mobility, thus limiting opportunities for career changes and adaptation to new roles, contradicting the principles of lifelong learning and ensuring educational permeability. There is also a concern about the lack of vertical mobility within the Croatian secondary vocational education resulting from the present reforms and introduction of modular teaching. Despite national agenda (paired with substantial EU funding) to improve the quality and availability of adult education, in practice we witness pumping quantity and building statistics at the expense of educational value. Despite lifelong learning agenda, we find no separate and highlighted place for adult learning in the CQF, since its educational programs are mainly aligned with standards of qualifications developed specifically for secondary vocational education, thus becoming only a fragment of secondary education. Finally, in practice we find many examples of the absence of the principles of encouraging and rewarding innovative, creative, and enterprising endeavors of educational staff and students.

In current educational objectives and practices, we also find misalignments with the true nature of learning, and the true meaning of teaching. The proposed increase in compulsory preschool hours risks undermining children's psychological and social development by introducing overly structured, school-like curricula at an early age. The modular teaching reform in vocational secondary schools faces criticism not only because of its overly complex and extensive curricula, and logistical challenges, but more importantly for overly prescribing and rigidly defining forms of cooperation, thus, misunderstanding and missing the essence of cooperation – of an authentic contact between involved persons through their unique competencies and ideas. The overall focus on standardized learning outcomes and evaluations neglects the intrinsic value of education, which should prioritize the process of learning, contact between teachers and student, and personal growth of students.

Implications

The rapid advancements of the 4IR necessitate an educational system that is flexible, innovative, and responsive to change. Current European and Croatian educational reforms, with their top-down approach and rigid standards, are misaligned with these needs. By embracing a bottom-up approach that reduces bureaucratic constraints, empowers educators and emphasizes holistic learning, Croatia can better prepare its workforce for the challenges and opportunities of the 4IR. Recommendations include:

- **Empowering Educators:** Allowing teachers and principals more freedom to innovate and adapt teaching methods to meet the evolving needs of students and the labor market.
- **Promoting Flexibility:** Developing flexible guidelines, recommendations, and tools that allow for adaptation and creativity rather than rigid, legally binding standards.
- **Emphasizing Holistic Education:** Shifting the focus from standardized evaluations to the process and intrinsic value of learning, fostering a passion for knowledge and personal growth among students.
- **Facilitating Mobility:** Ensuring vertical and horizontal mobility within education to support lifelong learning and career adaptability.

Limitations

This study primarily focuses on the Croatian educational system and its alignment with European reforms, which may limit the generalizability of the findings to other European countries.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work the author used <https://chatgpt.com/> in order to improve readability and language of the work. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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