

The Role of Media Education in Industry 5.0

MATEJA REK¹

Abstract The article examined how the existing digital media education framework for children and youth in Slovenia aligns with the human-centric principles of Industry 5.0, focusing on human-machine collaboration, ethical engagement with technologies and the future workforce's digital competences. The article provides insights into how youth themselves perceive how they were media educated growing up in our society. Through analysis of focus group discussions, the study highlights potential gaps or deficiencies in how media education is currently conducted in our society, especially in the context of preparing children and youth for the challenges and opportunities of Industry 5.0.

Keywords: • Industry 5.0 • media education • media literacy • critical thinking • digital competences

CORRESPONDENCE ADDRESS: Mateja Rek, Ph.D., Professor, Faculty of Information Studies, Ljubljanska cesta 31a, 8000 Novo mesto, Slovenia; School of Advanced Social Studies, Gregorčičeva ulica 19, 5000 Nova Gorica, Slovenia, e-mail: mateja.rek@fis.unm.si.

<https://doi.org/10.4335/2026.2.4>

ISBN 978-961-7124-30-9 (PDF)

Available online at <http://www.lex-localis.press>.



© The Author(s). Licensee Institute for Local Self-Government Maribor. Distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 license (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits use, distribution and reproduction for non-commercial purposes, provided the original is properly cited.

1 Introduction

Industry 5.0 represents a paradigm shift in the evolution of industrial and technological practices as it introduces more human-centric approach, as opposed to the conceptualisation of Industry 4.0., which was more focused on the role of smart technologies themselves. Industry 4.0 revolved around the advancement of technologies like the Internet of Things, artificial intelligence and automation, focusing on increasing data connectivity and enhancing productivity. Industry 4.0 is characterised by smart integration of machines, processes and workers with an aim to create smarter and more efficient manufacturing environment. The overarching goal is to improve productivity, reduce costs, drive innovation and offer new business models in manufacturing and industry. Industry 5.0 aims to introduce a more human-centric approach. Besides technological advancements it also pays attention to human creativity, decision-making and emotional intelligence in the development and use of smart technologies. In this context technologies are not seen merely as a replacement for human labour, which is quite a common assumption that many people have. This view does not fully capture the complex relationship between technology, humans and work, that has been rapidly changing due to numerous technological advancements worldwide. Some jobs are being displaced by robots, artificial intelligence or automatization, but new opportunities and changes in work are arising. The key will be ensuring that workers are prepared for these changes through education, reskilling and a focus on human-centred technology design (Barata & Kayser, 2023; Coelho et al., 2023; Oeij et al., 2024; Leng et al., 2022; Grabowska et al., 2022; Huang et al., 2022).

When examining the characteristics of Industry 4.0 and Industry 5.0, one can observe a clear parallel with the historical transition from classical management theories like Taylorism or Fordism to a more human-centered paradigms like Human relations movement (Bruce and Nyland, 2011). While Industry 4.0 emphasized automation, efficiency and data drive processes, echoing classical management theories, Industry 5.0 introduces a more human-centric approach. It recognizes the value of human creativity, interactivity and well-being alongside technological advancement, aligning closely with human relations and socio-technical theories that emerged as critique of purely mechanistic vires of organizations. These parallel highlights how technological progress is once again prompting a re-evaluation of the human role in complex systems. Industry 5.0 seeks to harmonize human and machine capabilities, fostering environments where technology is not seen as a replacement for human labour but as a collaborative partner that can work together with human potential, building also on systemic features like emergent properties of complex systems. The power of smart machines should be leveraged to carry out complex, repetitive tasks and humans could make more space for creative and intellectually stimulating work. Human well-being, ethical considerations of digitalisation and sustainability of practices are central to industrial and technological advancements in Industry 5.0 as innovation, that is not solely driven by efficiency and productivity, but also by considerations to social impact. This shift calls for a re-

evaluation of workforce training and education systems, as people need new skills to thrive in this emerging digital ecosystem. In this context, human-centred education, such as media education can play a role in preparing individuals for the challenges and opportunities presented by this new industrial era.

In this article we explore the role of media education in shaping the future potential of children and youth in the context of Industry 5.0, particularly within Slovene society. We believe that education of children is highly relevant for skill full and well-educated workforce in a society as it lays foundation for the skills and knowledge but also values that individuals need in the workplace. The study uses focus groups as the primary data collection tool, to gather insights from youth on the current state of media education of children and youth. The article examines how the existing media education framework for children and youth in Slovenia aligns with the human-centric principles of Industry 5.0, focusing on human-machine collaboration, ethical engagement with technologies and the future workforce's digital competences. Through analysis of focus group discussions, the study highlights potential gaps or deficiencies in how media education is currently conducted in our society, especially in the context of preparing children and youth for the challenges and opportunities of Industry 5.0. The article provides insights into how youth themselves perceive how they were media educated growing up in our society. Understanding their views provides valuable perspective on whether current educational practices resonate with the needs and expectations of the younger generation.

2 Media education and its relevance for Industry 5.0

Media education can be described as a process of teaching and learning about digital media, content, technologies and the ways digital media shape society and individuals' understanding of reality. It equips people to be media literate, providing them with skills to access, analyse, create digital content and share it using various forms of media (Hobbs, 2010; Martensen and Hobbs, 2015; Livingstone, 2004). Media education traditionally included print, film and television, but today is heavily focused on digital platforms, social media and algorithm-driven content. It teaches skills of digital content analysis and evaluation and promotes critical thinking about how media messages are constructed and the intentions behind them. It helps individuals to recognize bias, misinformation, propaganda as well as reflections of the media content they are exposed to on their beliefs and behaviour. With the spread of online media, media users do not have to be only passive recipients of media content but active creators of media messages themselves. Media education encourages responsible content creation and ethical participation online and as such is essential for developing active, informed citizens in a media-saturated world.

Beyond consumption, it emphasises creative production of digital media content enabling learners to become content creators, not just passive audiences (Rek, 2023; Buckingham and Sefton-Green, 2018). Digital media education can, if implemented meaningfully,

create more media literate people, if it manages to combine obtaining technical skills of properly using digital media devices and software and creating healthy and smart media use habits, but also develop critical analysis of media content (received and generated) as well as ethical responsible media use. Such media literacy skills can support individuals to more effectively engage with the evolving landscape of human-machine collaboration that Industry 5.0 places a strong emphasis on. In that context, developing media literacy skills can be very useful for digital workers to navigate and critically engage with emerging technologies rather than passively relying on automated systems. The human-machine collaboration assumed by the Industry 5.0 can only work if humans are active creators and recipients of digital content. Workers in Industry 5.0 should possess the skills to interpret digital information, interact with AI-driven systems and make informed decisions based on data analytics. The ability to think critically and assess digital content is particularly important as AI-generated outputs or algorithmic recommendations are not free from bias or inaccuracies. Media education teaches and encourages individuals to question and refine these automated processes creating circumstance in which it is more likely that technology can serve human creativity and ethical considerations rather than operating independently of them. Understanding the ethical implications of digital technologies is becoming increasingly relevant. Workers should be able to recognize the potential consequences of AI-driven decision-making, from data privacy concerns to the unintended biases embedded within machine learning models. In the world of Industry 5.0 being media literate also means understanding how digital platforms collect and use personal data to tailor content for each user on a massive scale. Recognizing this process and how it affects what we see, believe or buy, is a key part of modern media literacy. As industries move away from mass production toward customized, consumer-driven manufacturing, employees will need to develop the ability to create and manage digital content, whether through AI interfaces, augmented reality experiences or interactive platforms. This shift demands a workforce that is not only technologically proficient but also capable of engaging with digital tools in a way that prioritizes human needs and preferences. As Industry 5.0 continues to evolve, those who are media literate can be better equipped to harness technology in ways to enhance their adaptability and continuous learning.

The media education of children and the media literacy of the broader population are deeply interconnected (Buckingham & Sefton-Green, 2018; Rek & Murko, 2024), as the fundamental skills developed in childhood shape the collective media competence of society. When children are thought media literacy skills from an early age, they have better chances to grow into adults who can critically engage with information and navigate digital environments more responsibly. These skills become even more crucial as individuals mature and encounter increasingly complex digital landscapes filled with persuasive advertising, algorithm-driven content and politically charged narratives. Furthermore, the media literacy of adults, particularly parents, teachers and policymakers, directly influences the quality of media education that children receive. If adults possess strong media literacy skills, they are better equipped to guide children in their digital

experiences. If adults lack these competences, they can struggle to provide children with the necessary tools to navigate the digital world effectively (Golob et al., 2023; Rek & Kovačič, 2018). So, we see, that the relationship between media education of children and youth and media literacy of the population is in a way cyclical and reinforcing. In a society where adults, either in their role of parents, teacher or policymakers, are aware of positive effects good quality media education can have on children's well-being, it is more likely, that a well-informed, critically engaged population is cultivated, which in turns can strengthen media literacy efforts for further generations. By recognizing these connections, a necessity of integrating comprehensive media education into school curricula, public policies and lifelong learning initiatives is highlighted, to ensure that both individuals and society can navigate the evolving digital landscape responsibly.

The integration of media education into early learning can also be seen as an investment in the future workforce of Industry 5.0 as Industry 5.0 thrives not just on automation, but on human intelligence guided technology and media literacy skills do support this human-centric approach.

3 Exploring Media Education Through Youth Narratives: Focus Groups Results

The purpose of the focus groups we conducted in 2023 was to explore young people's experiences of media presence, habits and upbringing while growing up in Slovene society. The analysis focuses on how young people describe their experiences with media education when growing up. Special attention is paid to the influence of various stakeholders (for example parents, school, peers, media industry) on media education, factors that in their opinion influenced the formation of media habits in childhood and suggestions from youth on how media education in our society could be improved in the future. The focus groups were conducted as part of the data collection activities of the Infrastructure Program on Media Literacy, funded by the Slovenian Research and Innovation Agency. The full report entitled "Youth Reporting on Media Education in Our Society" (Rek, Ljubotina and Bašin, 2023), along with the transcript and the developed paradigmatic model, is available on the programs' website. Two focus group discussions were conducted, one with six participants and the other with eight, all of whom participated voluntarily. They were all young people, purposefully selected first-year students of the study field Media and Journalism. The participants were previously informed about the topic, and the conversation was led and guided by a moderator according to the principles of a semi-structured interview. On the one hand, by selecting participants in this way, we aimed for uniformity, which should be reflected in their linguistic expression skills, media awareness and media literacy competencies, which would potentially provide better conditions for the development of critical reflections on the problem under consideration. With the same purpose, we pragmatically determined the approximate age (participants were 19 to 20 years old) of the interviewees, as we speculatively assumed that the memories of the younger generations of the selected period

of growing up are more accurate and as such promise more high-quality answers from the discussants. With our work, we wanted to gain a more in-depth understanding of media education and its related stakeholders, factors and relationships between them from the perspective of young people. Our sample is therefore improbable and purposeful and represents both a homogeneous and heterogeneous whole. We recognize the diversity of the group on several levels. Namely, the respondents come from specific micro and macro environments, from different Slovenian regions, socio-economic backgrounds and families; therefore, their experiences are unique, as they have been exposed to different upbringings within their home, formal education institutions and society due to the listed characteristics. In this way, by illuminating several aspects of the same area, we have gained a broader and more holistic view of the situation (Lamut and Macur, 2012). However, the findings that appear on a purposeful sample are not generalizable to the wider population, but are limited to the studied sample (Vogrinc, 2008), which requires special attention when interpreting the results.

Focus group discussions provided valuable insights into young people's experiences with media and digital devices throughout their upbringing. Participants' accounts revealed both common patterns and individual differences in media exposure, use and parental control. Most participants received their first mobile phones with a physical keyboard in primary school, primarily for communicating with their parents. They later switched to touchscreen smartphones, typically in their later years of primary or early secondary school. Access to personal devices was often influenced by family financial circumstances and in some cases older siblings or parents would donate used phones. Many participants reported that mobile phone use was prohibited in primary schools, but some still found ways to use them discreetly during breaks. Regarding the presence of media in households, television was usually in shared spaces, such as the living room, where families watched programs together. Some participants had personal televisions in their bedrooms, which they often used to watch series, play video games or follow sports. Video game consoles such as PlayStation, Nintendo and PSP were popular among several participants, particularly for recreational purposes. Many families also shared a single desktop computer, which was used primarily for schoolwork, internet browsing or gaming. Some participants highlighted limited access to personal computers until high school, when academic demands increased, prompting families to invest in additional devices.

Media consumption varied among individuals. While some preferred watching television shows and movies, others enjoyed playing video games or scrolling through social media. A few participants mentioned their early exposure to media through parental influence, such as listening to the radio while doing household chores or watching news reports. Others recalled their initial fascination with online platforms, including YouTube, where they enjoyed a variety of content. Social media use evolved over time, as platforms such as Facebook and Snapchat became popular while growing up and enabled communication with peers. Some participants even maintained dual social media profiles, one public and

one private, to selectively manage their digital presence. Owning a smartphone is recognized as a social necessity rather than a luxury, with some recalling classmates who were teased for not having a device. However, the importance of the latest model seems to have diminished over time, as even inexpensive smartphones offer similar features. This reflects a shift from device competition to a more general acceptance of widespread digital connectivity.

When discussing, how respondents experienced media education when growing up several key themes emerged, including parental restrictions and generational differences in media use and literacy. Parental controls and restrictions on media use varied across households. While some parents enforced strict rules, such as limiting screen time or prohibiting television viewing after a certain hour, others were more lenient. Several participants admitted to secretly using devices outside of permitted hours, such as playing mobile games or browsing social media late at night. Some participants linked their media habits to academic achievement, noting that parents were more permissive if their children were doing well in school. They recounted a variety of experiences with parental controls, from using secret passwords to bypassing screen time limits to confiscating devices as a form of discipline. Some mentioned that these restrictions parents set regarding digital media use were not always effective, as they found ways to reconnect to Wi-Fi or access devices through siblings or shared family technology. However, some also appreciated structured guidelines and parents' setting limitations to the digital media use, such as using monitoring apps, as they thought this helped them to develop more responsible media habits. Concerns were being raised about the impact of unlimited media exposure on children's behaviour. Some participants argued that too much screen time can lead to addiction and hinders the ability to cope with boredom or real-life challenges. Others pointed out that inappropriate digital media management can lead to increased aggression and difficulties in social interaction. Stories of younger relatives addicted to devices reinforced fears about the long-term consequences of early media exposure.

Across all narratives, participants expressed concerns about the early introduction of screens in toddlerhood, often initiated by parents seeking convenience. This practice was criticized as developmentally harmful. Several individuals emphasized the importance of human interaction, eye contact and shared activities, suggesting that digital overuse may disrupt foundational social-emotional development. Media use was described as deeply embedded in everyday life, from checking the time to shaping personal identity. Participants reflected on the blurring boundary between utility and addiction, where simple tasks (like using a phone alarm) easily spiralled into extended social media use.

A recurring theme was the stark difference between past and present access to technology. And with generational differences they did not mean only the difference in media use between adults as their parents and their teachers but also stressed that there is a difference in media use between their generation (in the year 2023 respondents were aged 19-20

years) and generation of children younger than they are. They think that even if only a couple of years have passed since they were children themselves, their media education and experience is significantly different from the children growing up now. Several participants noted that their own exposure to digital devices began later compared to younger generations, who now demonstrate an almost innate ability to use smartphones and tablets. The presence of media in early childhood is considered both impressive and worrying, with concerns raised about potential developmental consequences such as reduced attention spans and impaired social interactions.

Participants discussed the contradictory behaviour of their parents who, many times criticized their children's media use but were equally engrossed in their own devices. Some shared instances where parents have dismissed concerns about their own media habits, revealing a double standard. This highlights the broader challenge of digital parenting and the difficulty of setting consistent boundaries when adults struggle with digital media consumption.

The topic of privacy sparked the debate. While some acknowledged the necessity of parental oversight, others believe excessive monitoring, such as reading messages, confiscating phones or parental location tracking and surveillance, is a breach of personal boundaries. Participants shared cases where inappropriate media content led to parental concern but emphasized the importance of trust and open communication rather than using only invasive control measures. Several participants, voiced discomfort with parental intrusion into their digital lives when they were getting older. The phone was described as an extension of the self, where unrestricted access by parents felt like a violation of personal space.

Participants speculated about how future generations will navigate media advancements. One noted that today's youth will eventually find themselves struggling to keep up with new technologies, just as older generations do now. This recognition of inevitable technological shifts highlights the continuous cycle of adaptation and learning required to stay media-literate.

Across the discussions, parental influence is identified as the most dominant and enduring factor in early media socialization. Many participants recalled their first experiences with digital media through their parents, who often modelled media use behavioural, frequently without conscious intention. Parents, especially mothers, were described as regular users of social media like Facebook, contributing to a perceived double standard: while children's screen time was regulated, adult overuse went unchecked. This contradiction was interpreted by youth as hypocritical, sometimes leading to mistrust and efforts to circumvent parental controls. Parental regulation ranged from strict monitoring and punitive measures (for example phone confiscation after bad grades) to permissive and trust-based approaches, where children were allowed unsupervised access under the assumption of responsible use. However, in both scenarios, participants commonly noted

a lack of proactive or dialogic engagement about media risks and opportunities. Interestingly, children often responded to strict controls with covert or resistant behaviours, such as using mobile data to bypass home Wi-Fi restrictions or secretly using devices at night. These narratives highlight a disconnect between adult intentions and youth practices, as well as an underestimation of children's digital skills.

Participants emphasized that media usage and learning outcomes vary significantly across individuals, even within the same family. Several noted that media should not be simplistically blamed for poor academic performance as cognitive abilities and learning styles differ greatly among people. Some struggled academically despite limited media exposure, while others thrived despite frequent use. One participant noted that breaks between learning sessions, supported by brief media interaction, can enhance motivation, challenging the assumption that media is always a distraction.

Another recurring theme was the absence of communal media rituals in many households. In contrast, those who shared regular family activities, such as co-watching films or discussing online content, reflected more positively on their upbringing and demonstrated greater media awareness. These findings suggest that shared media experiences and open dialogue about digital media use in families may be more effective than only using restrictive controls in cultivating media literacy.

The role of schools in media education was another recurring theme. While primary schools largely implemented a ban on the use of mobile phones, in secondary schools, especially specialized institutions such as the Secondary Media and Graphic School in Ljubljana, they were more exposed to digital tools and technologies. Students coming from this school highlighted their opportunities to engage with various digital devices as part of their curriculum, which allowed them to develop digital media skills and literacy. Others noted that their educational institutions strongly emphasized safe digital media use but lacked a more holistic approach to media literacy programs.

Many participants of the focus groups expressed scepticism about the effectiveness of media education in schools. Some recalled attending workshops or courses but found them unmemorable and uninspiring. They argued that past generations did not require extensive media education due to less media exposure, whereas today, with the rapid development of digital platforms, there is a significant need for engaging and relevant educational content that can capture students' attention. The role of formal education in fostering media literacy was consistently described as inconsistent and, in most cases, insufficient. Although some participants cited school-based lessons, such as the "Safe.si" workshops or media-related vocational curricula, as informative, the majority described media education as boring, outdated or poorly implemented. Teachers were often viewed as technophobic. Participants highlighted that media education often began too late, typically after foundational habits and attitudes were already established through familial and peer interactions. In many accounts, the school's failure to adapt to contemporary

digital realities contributed to student disengagement. Exceptions were noted in specialized institutions like high schools offering specialized media programmes, where media use was embedded in both theoretical and practical instruction. Some participants also perceived a generational digital divide between themselves and their teachers, which hindered meaningful discussions about online behaviour and risks. In several cases, students felt that they were more informed than the educators tasked with guiding them.

When talking about the role of peers in media related behaviour, participants reported that peers played a secondary role during early childhood, with family environments being more influential. When growing up however, peer influence gradually intensified, particularly around issues of connectivity and social inclusion, identity and digital conformity. Access to a mobile phone or social media account in adolescence was often driven by social expectations and fear of exclusion by peers, rather than intrinsic interest. Several narratives referenced bullying or marginalization of those who did not possess the “right” device or platform access. A form of digital social stratification emerged, wherein phone brands, apps used and as well as social media presence contributed to perceived status and belonging in school environments. Despite this, peers were not described as primary educators in media literacy; rather, their influence was described as indirect, affecting media habits through normative pressure and shared preferences (for example YouTube channels, TikTok trends). Participants did not report extensive peer-to-peer learning around digital skills or safety.

Interestingly youth respondents did not prominently mention media themselves as a stakeholder influencing their media habits or literacy. This suggests that young people may not fully recognize or critically engage with the media industry’s influence on their media habits and literacy. It is possible that digital media are seen as implicit aspects of their environment, rather than forces they actively consider. Instead, youth associate media education with influences from families, educators and friends. Youth much more often mention digital media as a source of entertainment and rarely in their ability to educate or influence peoples’ behaviour, mindsets or values. The lack of focus on the media industry as a stakeholder in shaping children’s media habits and literacy when growing up highlights a potential gap in youth understanding of the broader forces shaping their media consumption. This finding suggests that media education could benefit from placing greater emphasis on explaining the influence of the media industry to children and youth, to help them recognize how digital media content is created and delivered to them and what the broader context of such digital media production is.

The analysis of focus group responses reveals that in addition to parental, school and peer influences, individual personality traits of both parents and children, as well as broader socio-cultural and technological contexts, play an important role in shaping media habits and media education during childhood and adolescence. One of the most prominent themes emerging from these narratives is the significant role of personal and familial characteristics. Participants emphasized that the character of the child and parent strongly

affects how media is used and integrated into daily life. For instance, some individuals reported that their generation, having grown up with limited digital exposure, had more opportunities to develop resilience and stronger self-regulation, which shielded them from excessive media influence. Others noted how parental inconsistency, such as a father watching sports during family meals, undermined efforts to model healthy media use. The degree of parental involvement and their own media habits had a direct impact on children's behaviour. In some families, encouragement of creativity, hobbies, sports and outdoor activities were used to successfully limit device use, while in others, a lack of control or technological awareness led to early signs of digital dependency, even among toddlers. These findings underscore that media education is not only a matter of external rules, but also of internal family culture and value systems. Strict parental controls were often bypassed by tech-savvy children, especially when communication and trust were lacking. Participants shared experiences of covert media use, creating secret accounts or feigning phone use in public spaces due to social anxiety. They highlighted the need for trust-based media related upbringing rather than approaches to media education that rely solely on restrictions and punishments. Some respondents noted that punitive parenting can suppress open dialogue, fostering secrecy and long-term emotional distance. Others recalled that punishment sometimes resulted in resentment or behavioural masking, rather than genuine understanding or internalization of rules.

Digital media was also identified as a tool for self-expression and identity formation. Adolescents and young adults reported using social platforms to explore and communicate their personal style, values and social connections. Some participants reflected on how music videos or online role models influenced their clothing choices and worldview. For others, digital platforms served as creative outlets or even sources of income, illustrating the dual role of media as both cultural influence and economic opportunity.

4 Discussion and Conclusions

The focus group discussions with youth on their media education experiences when growing up reveal a complex interplay of familial, educational and peer influences on media habits and media literacy development throughout childhood and adolescence. Respondents, aged 19 and 20 years, reflected on their formative experiences with digital devices, often highlighting the role of parents, schools and peers as key influencers. Most of respondents acquired their first mobile phone in primary school, with family financial circumstances often shaping access. Parents played a dominant role in early media socialization, using a mix of restrictive and permissive strategies, although these approaches were often undermined by children's digital know-how and lack of open communication. Focus groups participants expressed concerns over early screen exposure among today's children, noting differences in that regard even between their generation and those only slightly younger. Schools were seen as inconsistent in their role of media educating children, with only specialized school programs in media production were

mentioned as offering meaningful engagement with digital media literacy. Peer had a growing influence in adolescence, especially around issues of entertainment, popularity, connectivity and belonging, but were rarely mentioned as source of education and guidance in obtaining digital or media literacy skills. The media industry itself was not prominently acknowledged by focus group participants as a stakeholder, which can suggest a limited awareness of broader systemic influences on their media consumption. Many narratives revealed tensions between control and autonomy, underscoring the importance of trust-based, dialogical approaches over purely punitive ones. Overall, the findings call for more comprehensive and proactive media education that includes critical thinking skills, analysis and evaluation of digital media content and skills of digital media content creation, as well as media education strategies, that recognize the interplay between personal agency, social context and structural forces.

The findings of this focus group study provide an interesting lens through which to consider the evolving role of media education in the context of Industry 5.0, a paradigm that emphasizes human-centricity in contrast to more efficiency and technology-driven goals of Industry 4.0. As Industry 5.0 brings renewed focus to the relationship between humans and intelligent technologies, the development of critical media literacy becomes not merely relevant but imperative. The observation that young people did not prominently mention the media industry as a stakeholder in their media upbringing or rarely mentioning of development of critical thinking skills as a part of their media education in schools or in their families, underscores a significant gap in critical awareness, one that is increasingly consequential in a hyperconnected, algorithm-driven media ecosystem.

In the conceptual framework of Industry 5.0, humans are perceived not just as users of digital technologies, but as creative collaborators with digital systems. This requires a form of digital media education that goes beyond just teaching and learning about functional digital skills like how to use the devices or software. It demands what the sociologist Margaret Archer calls meta-reflexivity (2007), a mode of self-reflection in which individuals critically evaluate both their own personal reality but also broader cultural and moral order in which those goals are formed. In the context of Industry 5.0, meta-reflexive media education could encourage learners to ask: Why am I co-creating with this algorithm? Whose values are being encoded into these data models? How does this collaboration reshape my sense of agency, responsibility and relationships with other? By encouraging such second-order questioning, educators could help children and youth to move from mere technical competences to ethical-critical stewardship of socio-technical futures, acting as responsible creators of digital content rather than passive consumers. This requires a form of media education that teaches critical thinking and ethical reflection of digital media content and use, as well as understanding of the socio-economic forces behind media production and data economies, that heavily determine both digital media content and its use. The focus group findings show that media education in schools remains largely inconsistent and insufficient in that regard often fails

to address these deeper dimensions. While participants described schools offering basic safety workshops or practical courses on media, few recalls having dealt with topics such as media ownership, consumerism, algorithmic bias, surveillance capitalism or the political economy of the media industry, all of which are relevant to Industry 5.0. Industry 5.0 also emphasizes interdisciplinary collaboration and human-machine symbiosis, which requires educational systems to prepare students not only to critically consume media but also to co-create in the digital environment in an ethically informed way. In this light, the findings argue for a reshaped model of media education that recognizes the role of industry as a powerful stakeholder and teaches young people to responsibly navigate and shape digital reality. Although it is not a traditional “factory-floor” actor, creative and media industries are among the strategic community of practice for Industry 5.0.

References:

- Archer, M. S. (2007). *Making our way through the world: Human reflexivity and social mobility*. Cambridge: Cambridge University Press.
- Barata, J., & Kayser, I. (2023). Industry 5.0—past, present, and near future. *Procedia Computer Science*, 219, 778-788. <https://doi.org/10.1016/j.procs.2023.01.351>
- Bruce, K., & Nyland, C. (2011). Elton Mayo and the deification of human relations. *Organization studies*, 32(3), 383-405.
- Buckingham, D., & Sefton-Green, J. (2018). Multimedia education: Media literacy in the age of digital culture. In Kubey, R. (Ed.), *Media Literacy Around the World* (pp. 285-305). New York & London: Routledge. <https://doi.org/10.4324/9781351292924-14>
- Coelho, P., Bessa, C., Landeck, J., & Silva, C. (2023). Industry 5.0: The arising of a concept. *Procedia Computer Science*, 217, 1137-1144. <https://doi.org/10.1016/j.procs.2022.12.312>
- Golob, T., Makarovič, M. & Rek, M. (2023). Parents' meta-reflexivity benefits media education of children = La meta-reflexividad de los padres beneficia la educación mediática de los niños. *Comunicar*, 31(76), pp. 95-103. <https://doi.org/10.3916/c76-2023-08>
- Grabowska, S., Saniuk, S., & Gajdzik, B. (2022). Industry 5.0: improving humanization and sustainability of Industry 4.0. *Scientometrics*, 127(6), 3117-3144.
- Hobbs, R. (2010). *Digital and media literacy: A Plan of action. A White paper on the digital and media literacy recommendations of the Knight Commission on the Information Needs of Communities in a Democracy*. Washington, DC: Aspen Institute. Retrieved from <https://files.eric.ed.gov/fulltext/ED523244.pdf>
- Huang, S., Wang, B., Li, X., Zheng, P., Mourtzis, D., & Wang, L. (2022). Industry 5.0 and Society 5.0—Comparison, complementation and co-evolution. *Journal of manufacturing systems*, 64, 424-428. <https://doi.org/10.1016/j.jmsy.2022.07.010>
- Lamut, U., & Macur, M. (2012). *Metodologija družboslovnega raziskovanja: od zasnove do izvedbe*. Ljubljana: Vega.
- Leng, J., Sha, W., Wang, B., Zheng, P., Zhuang, C., Liu, Q., ... & Wang, L. (2022). Industry 5.0: Prospect and retrospect. *Journal of Manufacturing Systems*, 65(1), 279-295. <https://doi.org/10.1016/j.jmsy.2022.09.017>
- Livingstone, S. (2004). Media literacy and the challenge of new information and communication technologies. *The Communication Review*, 7(1), pp. 3-14. <https://doi.org/10.1080/10714420490280152>

- Martens, H., and Hobbs, R. (2015). How media literacy supports civic engagement in a digital age. *Atlantic Journal of Communication*, 23(2), 120-137. <https://doi.org/10.1080/15456870.2014.961636>
- Oeij, P., Lenaerts, K., Dhondt, S., Van Dijk, W., Schartinger, D., Sorko, S., & Warhurst, C. (2024). A conceptual framework for workforce skills for Industry 5.0: Implications for research, policy and practice. *Journal of Innovation Management*, 12(1), 205-233. https://doi.org/10.24840/2183-0606_012.001_0010
- Rek, M. and Kovačič, A. (2018). Media and preschool children: The role of parents as role models and educators. *Medijske Studije*, 9(18), 27-43. <https://doi.org/10.20901/ms.9.18.2>
- Rek, M. (2023). Parent empowerment can change media education. *Politics in Central Europe*, 19(s1), 441-453. <https://doi.org/10.2478/pce-2023-0021>
- Rek, M., Ljubotina, P. & Bašin, A. (2023). Poročanje mladih o medijski vzgoji v naši družbi. *Infrastrukturni program medijska pismenost*. Retrieved from <https://pismenost.si/porocanje-mladih-o-medijski-vzgoji-v-nasi-druzbi/>
- Rek, M. & Murko, E. (2024). The interdependence of socio-economic factors and media literacy: focus on critical media content analysis and evaluation. *Politics in Central Europe*, 20(4), 605-619. <https://doi.org/10.2478/pce-2024-0027>
- Vogrinc, J. (2008). *Kvalitativno raziskovanje na pedagoškem področju*. Ljubljana: Pedagoška fakulteta, Univerza v Ljubljani.