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Educationalising digitalisation: Towards a new perspective on technology education

Abstract: In its first part, this paper will attempt to point out some of the underlying assumptions and contradictions inherent in contemporary discourses on the 'digitalisation of education', which have largely shifted away from viewing technology instrumentally as a means to an end and have instead begun to ascribe to it a 'primary' status, sometimes portraying it as a general condition for all educational endeavours or as an agent of educational development. Subsequently, we will try to show what it would mean to consider the elements of this question from a reverse perspective, as 'educationalising digitalisation', which would mean subjecting digitalisation and modern technology in general to reflection through educational purposes. In the second part, relying on the concepts of empowerment and understanding, we will try to justify the reasons for a new approach to 'technology education' that focuses neither on the efficient use of technology nor on the retroactive damage management of its 'side effects'. Instead, we will attempt to demonstrate the necessity of capturing individual technologies technologies and the maxims of their potential effects (before they happen) as objects of reflection, thus revealing and helping to understand their designs and potentialities. This paper argues that such a reflection is becoming essential for ethical agency in the so-called tech-driven world.

Keywords: digitalisation, educational purpose, humanities, technology education, critical literacy

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Introduction: Digitalisation must go to school – the need to (re)frame the issue of digitalisation

In recent years, calls for the digital transformation of education and the accompanying nuances of scepticism and criticism have resonated with considerable media-driven hype as among the most prominent controversial issues in the field of education. Even if it is insufficiently defined, *digitalisation* often appears as a generic name for introducing high-tech gadgets as didactic tools, despite numerous controversies. Nonetheless, we stand in the middle of countless claims that digitalisation represents the 'key step' or 'top priority' (Zierer 2019, p. 2) that will propel us into the future, enabling modernised and efficient educational work. In the aftermath of the COVID-19 pandemic, digitalisation remains even more firmly on the priority lists of education policymakers' priorities. Given that the phrase *digitalisation of education* has made headlines and become part of our everyday language and mode of thought, it is worth starting on the elementary level and asking how this phrase relates to its parts, that is *education* and *digitalisation*. In fact, these two elements are not equivalent. *Education* represents a broad field of practice and theory rooted in its long and diverse humanistic tradition. Thus, it is capable of reflecting, formulating and answering questions about what its ends and appropriate means should be. Simultaneously, *digitalisation* is an approximately circa two-decade-old label that refers to the improvement of processes through the introduction and use of digital technologies. Hence, it primarily belongs to the side of tools. It seems that the phrase in question establishes its own priority in the relationship between its two parts, assuming that *digital* is the *agent*, while *education* – similar to the economy, business or administration before that – is its *object* of transformation.

In the following paper, we will proceed from this initial observation to show how the formulation *digitalisation of education* is misleading or at least insufficient. We will highlight the assumptions from which it emerges and the existing ideas, processes and redefinitions in the field of education that have provided a supportive context and basis for its entry and implementation. We will further illuminate these observations by reversing this dominant perspective and rethink-

ing digitalisation from the opposite direction – as *educationalising digitalisation* – a formulation chosen to suggest the urgent need to (re)frame the issue of digitalisation. Unlike the conventional interpretation of transforming non-educational social concerns into issues to address (and practically resolve) primarily or exclusively through educational institutions, we propose the term *educationalising* to signify the transfer of the initiative regarding this matter back to educational questions and categories. As a further step, this means enabling education to actively provide criteria and principles that would question and place digitalisation in a meaningful supporting role and in a proper relationship with the educational process. Finally, by reversing the role of *agent* and *object*, we can open up possibilities for a new study approach (and content) that would momentarily distance digitalisation from the pragmatic questions of its effective use and return it to the role of an object of *reflection* and *understanding*. Thus, we can reconnect these two capacities as integral parts of our practical engagement with technology.

Some reasons for the technicalisation of education and its directionlessness

Early in the emerging mass use of personal computers (PCs) in the workplace, Apple (2002) noticed how easy it was to see 'high-tech' as a promise that could benefit schools in the same way it was with issues of economic efficiency, which suffered from the crisis of the early 1980s. The reason for this view was not only the need to update the qualification aspects of education to meet the growing demand for a computer-skilled workforce, but rather a more fundamental tendency that was not limited to a particular region or national context. Education was increasingly perceived as a 'legitimate purview of technological restructuring' because educational debates and discourses had become (self-)limited to mainly technical issues, where 'questions of *how to* have replaced questions of *why*' (Apple 2002, p. 442). Furedi (2009) observes variants of the apparently identical 'techno-centred' tendency. For example, he describes the 'fetishisation of change' or the 'cult of novelty' in the field of education as an imperative that tends to view the entrance of technological innovation into the world of human affairs as the main generator of the *new* and, simultaneously, a sufficient reason for a responsive and adaptive transformation of education. This provides by itself the 'main rationale for reform' (Furedi 2009, p. 30). According to Furedi, the dominance of 'how to' is also evident in the ongoing crisis of adult authority in education, becoming transparent in the responses to it revolving around the search for motives that would 'keep children interested (ibid., p. 11). Although authority, as the responsibility of adults for the common world (Arendt 2006), is not a technical question at all. Nonetheless, educationalists tend to be preoccupied mostly with innovating pedagogical methods that emphasise and rely too heavily on the role of 'stimulating teaching techniques' or 'information technology' in solving high-ranking problems of motivation, discipline and enthusiasm that belong theoretically to the philosophy of education and practically to the teacher's talent and

authority. In this respect, the pressing question of whether certain AI-generated technologies will replace teachers is flawed, because technology seems to be used as an emergency exit for quietly filling an existing void, especially in terms of pedagogical authority, but without the slightest possibility of ever replacing its role.[1]

The advocacy of digitalisation and the adoption of information communication technology (ICT) gadgets in the classroom found another convenient basis in the discourse of *learnification,* described in detail by Biesta (2006, 2015) as a shift that views 'education primarily in terms of learning' (Selwyn 2022, p. 133). This shift towards the receiving end of the spectrum has resulted in a disproportionate emphasis on the individual needs of the learner and on the learning outcomes measured as the exclusive indicator of the whole outcome. Coupled with the perspective that teaching is, in fact, to facilitate learning suggests a framework in which again 'the only questions that can meaningfully be asked about education are technical questions, that is questions about the efficiency and the effectiveness of the educational process' (Biesta 2005, p. 59). In this reduction of pedagogical relationships and actors to individual learners, learning and the means to achieve the best learning results effectively, ICT appears to be an ideal (and universal) tool that can boost efficiency and enhance the 'receiving end' that is now in focus. ICT is considered a technological fellow to 'digital natives' (Prensky 2001) because it can perfectly match their learning environment, which is supposedly 'revolving' entirely differently due to their technology-saturated everyday life. Finally, ICT has been recognised as a more accessible, useful and diverse source of information that can meet the individual demands and knowledge preferences of learners in a far more attractive and efficient way than 'the teacher, but also the curriculum and the school' (Biesta 2016, p. 32). In this respect, the discourses of learnification and digital technologies are mutually enabling, since the mere omnipresence of the latter already 'provides a strong (and according to some even compelling) argument for shifting the focus to learning' (ibid.).

Several external motives are also used to endorse digitalisation, such as exploiting narratives of major global trends and awareness. One such example often originates from tech firms, policymakers and technolibertarians trying to sell ideas that the digital transformation of education belongs (and in general) is one of the key elements for the green transition, for achieving environmental sustainability and even for significantly reducing carbon emissions. However, as Selwyn (2023) notes, it is enough to consider the often-undisclosed material side of the mass use of digital technologies, from piles of hardware waste to resources and energy consumption, to realise that the 'continued excessive application of digital technology in education makes little sense in terms of environmental

1 Moreover, the uncritical acceptance of technology could further undermine other aspects of the teacher's position. Apple (2002, p. 448) especially notes the overemphasis on ICT in the classroom combined with poor teacher training in computers. Consequently, the reliance on pre-packaged software and the constant need to stay updated and upgrade digital skills may again result in the further 'deskilling and depowering of a considerable number of teachers'. In these conditions, an emphasis on the acquisition of digital expertise could strengthen the misleading impression that this 'expertise' now represents the full range of skills and capabilities of the teaching profession (see also Biesta 2020).

sustainability' (Selwyn 2023, p. 187), but represents, especially given its trend of expansion, another environmental burden.

The variants of the aforementioned *turn* towards the technical aspects of education, which emphasises the invention of methods and the application of sophisticated tools, etc., produce a kind of discourse with a prolific output of new fine-sounding expressions and catchwords. Simultaneously, these represent a significant narrowing of the perspective that obscures the fundamental issues of education. One of the reasons for this turn appears to lie in the reproduction of a general principle that primarily shapes the modern organisation of labour. This consists of fragmenting constituent parts of human activity, dividing *conception* and *execution* into two strictly separated specialised profiles. Separating planners from those who carry out what is planned and conceived has restricted each side's focus to the elements necessary to efficiently carry out what is designated. Consequently, the perspectives of many can be easily reduced to handling and innovating the means in the best possible way. For example, when efficiently achieving results is the only thing left after the why and the what are determined, the how can seem to be the primary preoccupation (goal) of a fragmented activity. Meanwhile, imagining or thinking about actual purposes seems to fall out of interest and jurisdiction, as if someone else, somewhere else, were in charge of this task. As Biesta (2022) notes, a common educational discourse in circulation today, which is riddled with *efficiency*, *development*, *enhancing* and *results*, shows a fundamental paradox. Its content is made of directionless terms, which started to appear as adequate answers that do not require further justification. In this kind of educational discourse, the educational dimension is missing. According to Biesta (2016), an educational language[2] should always be able to raise 'questions about content – the "what" – about purpose – the "what for" – and about the relationships that are most conducive to this' (Biesta 2016, p. 34).

It seems that directionlessness has indeed taken the lead in the case of the 'digitalisation of education'. Throughout history, education has always used technologies, some of them showing incredible versatility and resistance to obsolescence. Correspondingly, it should be surprising that we suddenly attribute such a prominent role to (digital) technology that we must call education *digital education* or entrust digital EdTech with the agency of transforming education. Clearly, computers surpass paper in complexity and in what they can and cannot enable; however, technological sophistication is not the main reason in this case. The entirely new structural position in which we place technology relative to education has effected this change. Biesta (2020) recognises a hierarchical inversion of means–ends represented in the phrase *digital first*, which has been around for a while in educational circles but went viral during the COVID-19 pandemic. The problem is that this phrase did not signal an *interregnum* in an otherwise normal state of affairs. It was not only 'a *characterisation* of education during the pan-

2 Biesta (2005) discusses the language of education beyond its purely descriptive function. Because language constitutes what can be said, what can be done and what can be thought, it represents one of the most relevant questions in education with which we must start.

demic but also […] an *imperative* for how educators should proceed' (Biesta 2020, p. 2).

If educational discourse becomes structured around the imperative of 'digital first', then we obtain an upside-down narrative where the means pretend to be something 'primary'. At least two consequences immediately follow. Intentions[3] to digitalise education can now be voiced without providing any clear answer to what supporting role digitalisation will play in relation to educational purposes or didactic processes, thus simultaneously obscuring the 'primary' objectives of education (Zierer 2019). Although the imperative 'digital first' should sound odd to common-sense reasoning, as it is no different from a carpenter working under the motto *hammer first* (Biesta 2020), it does not necessarily appear as a mistake or represent a hindrance. It seems to be the other way around since a great portion of Ed-tech speak, as Selwyn (2015) notes, can create its own demand in an advertising fashion by fuelling hype and overconfidence in the positive impact of digital transformation. Meanwhile, it simply ignores the key elements and facts of the educational context. Selwyn finds a matching description for EdTech speak in Frankfurt's (2005) philosophical treatise *On Bullshit*. Selwyn uses this work to illustrate that the mainstream language that pervades education and technology usually is not deliberately lying but represents a completely unreflective use of slogans and clichés. These are repeated mindlessly without any concern or interest in logic, context or how things really are. The *bullshit* character of EdTech speak originates 'from a cynical lack of concern over the truth or authenticity of what one is talking about. Many discussions of education and technology are therefore the result of people talking loudly, confidently and with sincerity regardless of accuracy, nuance and/or sensitivity to the realities of which they speak' (Selwyn 2015, p. 4).

The first aspect of 'educationalising digitalisation' – questions of purpose come first

So, the first major aspect of 'educationalising digitalisation' should be that any informed discussion, decision or implementation of means should happen only in reference to educational purposes. From this perspective, the *digital* can never appear first, since questions of means are only secondary to questions of purpose. To put education first would simply mean that we always must start with the question of what we are after and only then progress to the question of *how* to get there. Biesta (2016, 2020) exemplifies how to restore educational purposes as a point of reference in reflecting on and positioning questions of content, relationships and, finally, educational means. In a series of opening remarks, Biesta

3 This 'primary' status is constantly reiterated in EU policy documents and discourses by 'portraying EdTech as a panacea' (Žmavc and Bezlaj 2024, p. 12) for every conceivable pedagogical dilemma. If EdTech became the general condition to attain every educational end, then it became an end in itself. That is, we want EdTech for its own sake, because it provides everything else.

points out that an educational purpose is not to be understood as a set of defined objectives and indicators of accomplishment, but rather as an agenda or orientation for a pedagogical activity that keeps us in the right direction. Furthermore, Biesta proposes leaving the one-dimensional perspective of a single purpose and turning to a multi-domain perspective. '[E]ducation […] unlike a range of other human practices, is not orientated towards a single aim, but actually "functions" with relation to a number of purposes or, as I prefer to call it, a number of different domains of purpose' (Biesta 2016, p. 34). A multi-domain perspective allows us to perceive a concrete educational aim from diverse angles. Accordingly, it also provides a much more precise framework for questions and answers regarding the analysis and design of education (see Biesta 2016, p. 36).

Biesta identified three domains of educational purpose. The first in the foreground is usually qualification, which aims at acquiring the skills and knowledge needed for meaningful activity in different social spheres, more specifically in the sphere of work or in the general sense, when we say that education should qualify young generations 'for life in complex modern societies' (ibid., p. 35). The second domain that tends to transmit culture, customs and traditions, based on which we can identify ourselves as a member of a certain society or political community corresponds to socialisation. Finally, through subjectification, students are enabled to enter and coexist in the world with others as autonomous subjects capable of acting and thinking in their own right, or in other words, 'be(come) subjects of their own lives, and not remain or become objects of influences outside of them' (Biesta 2020, p. 5). Although these three domains must be distinguished as having disparate content, Biesta points out that, practically, when assessing a certain educational question, they should not be treated separately, since these three domains always co-occur interactively.

Let us sketch a concrete example of our main topic using these three domains. Digital transformation discourse emphasises the need to prepare young generations to function in a 'tech-driven world'[4], often prioritising digital skills in the most pragmatic meaning of using tools creatively, effectively, safely etc. When doing so, this discourse obviously promotes the qualification domain in an updated manner. However, this domain alone cannot represent the educational whole or be a sufficient reason for adopting, for example certain ICT tools in the classroom. Although the current situation often reflects exactly the opposite, we must rigorously ask what the 'side effects' could be on the remaining two domains. Because (digital) tools are not neutral and the relationship between educational means and ends is not technical[5], it is evident that the different types of technology used in education have their own share of educational potential, interfering with other domains. Consequently, the often-used criteria of effectiveness must be set aside,

4 A popular phrase that implicitly suggests that we may see technology in a new light, not as an instrument that helps us to achieve our goals, but as the central subject of history. See *Digital Education at School in Europe*, Eurydice Report, 2019, p. 19.

5 Biesta (2016) tries to stress that didactic tools, unlike other 'crafts', are not externally connected but constitutive to their ends. Tools used in education are not interchangeable without also causing changes in learning content and pedagogical relations. '[S]tudents not only learn from what we say, but they also learn a lot from how we say it and from what we do' (p. 38).

and greater emphasis must be placed on understanding what a certain technology 'potentially communicate[s] to our students […] what kind of messages are conveyed' (Biesta 2016, p. 38).

What kind of 'message' would a full-scale expansion of ICT tools in the classroom send to the ongoing efforts to build school–community relationships when we know that this 'expansion' would significantly shift the focus of relationships to the apparatus and enhance the belief that we can expect more from technology than from each other? What would this mean for a generation of students who are already hyper-digitalised outside school and experiencing digital addiction, ideological polarisation and social isolation that we do not know how to address properly and mostly try to mitigate their consequences? Let us move to the level of subject formation. We should focus on how the extensive use of digital tools (especially those powered by artificial intelligence, which can do most thinking and memory operations instead of us and better than us) would collide with the all-important feeling of gradually gaining *confidence* in our own ability. That includes the confidence to write the first sentence, the first essay etc. Finally, pragmatically oriented digital skills, no matter how useful in solving unique technical problems, still tend to 'insert individuals into existing ways of doing and being' (MacAllister 2016, p. 377). Meanwhile, the formation of an autonomous subject means the ability to act and think independently, to question the existing order and to formulate one's own problems, not just solve those already posed. More generally, it means the capacity to start *new beginnings* (Arendt 1998).[6] Assessing EdTech through a multi-domain perspective could offer educators a more comprehensive picture of deciding which type of EdTech to use, under which circumstances, in which way etc. In cases where the result of the assessment would be 'non-use', educators would be left with strong arguments to resist and disprove those pressures that view the non-use of technology strictly as a matter of deficit, that is as 'shortfalls in cognition, personality, knowledge, resourcing, social situation or personal ideology', which simultaneously 'denies the individual any rational choice and free-will' (Selwyn 2003, p. 107).

Although this example is not as precise and elaborate as it could be, the result is definitely not a handy argument to reject digitalisation. However, it certainly shows an urgent need to rethink it, starting with its fundamentals and particularly reforming current policies that freely promote high yields from the immediate implementation of digital EdTech in education. Any attempt that, based on this multi-domain analysis, would move to the side of educational design must be aware that no exact scientific methodology could answer what we should do. At this point, Biesta (2016) referred us back to the element of human judgment, which must consider what we value and what we ought to value and include explicit justifications for our decisions. We could add that this value judgment cannot be made properly without a keen sense of the times in which we live and which problems and trends characterise it the most. It seems that we should

6 It is this dimension of subjectification that makes education significantly more than just integration into society. 'Being educated means that one has the opportunity to go on with what really matters, also in unforeseeable and truly new ways' (Vlieghe 2018, p. 59).

begin our judgment by balancing the three domains of educational purpose. If we accept Biesta's (2022) assessment – and there is no reason we should not – the current situation indicates that qualification is at the core of the educational universe. Socialisation is something we can attach as a side dish, and subjectification is a luxury we can afford if the time and resources remain available. Is this kind of balance between domains still sustainable in times of acute political extremism, social anomie and technocentric myopia, where ideas of education still largely consist of integrating newcomers into the existing order?

The second aspect of 'educationalising digitalisation' – a new approach to technology education

We have reached the second major aspect of 'educationalising digitalisation'. This is conceived on the background of a more meaningful (re)balance of 'educational priorities' (see Biesta 2022, p. 8) towards a greater emphasis on capacities that could support the fundamental traits of subjectification described above. In principle, the opening question could be as follows: Which capacities would come into play – and how – if we turned digital EdTech and technology as such into objects of reflection? In this way, we would begin to sketch a new approach to 'technology education' that is free to take a necessary distance from pragmatic notions that emphasise the effective use of tools and their constant updating – in short, a distance from being directly useful for existing social demands. This approach is not some unique innovation or an unaffordable luxury since it just acknowledges the usually forgotten 'double history of the school', as described by Biesta (2016). The 'first' history sees the school as a function of modern society that must functionally integrate newcomers into its myriad processes. Here, most mainstream EdTech originates. However, there is a 'second' history, which allows us to legitimately introduce EdTech content as a new approach. The 'first' history of the school is defined as a certain degree of openness to society's expectations and needs. The 'second' history, which is also part of the rationale of the modern school, represents its opposition, 'a place that is precisely shielded off from demands of society so that there are opportunities for children and young people to experiment, try out, practice and grow up without the constant pressure to do everything already perfectly and under the direct "gaze" of society' (Biesta 2016, p. 39). In the end, by preserving a space that does not have to submit to constant demands for preparation, let alone adaptation, we create the necessary conditions in which coming generations can acquire the capacity for judgment regarding 'what in the world it is worth following, and where resistance is called for' (ibid., p. 40).

A quick overview shows us that functional literacy regarding this matter is extensively represented in many official digital competence frameworks. (See Example 5 on the core digital competencies in Vuorikari et al., 2022). The sporadic occurrence of the term *critical*, without any elaboration of what it might mean, signals nothing other than a substantive void on the side of critical literacy. In the

direction we have outlined with the help of 'subjectification' and the 'second history of the school', we will exploit this void and try to sketch introductory sections of a technology education that could build on a rehabilitation of three interconnected capacities. We have used the term *rehabilitation* deliberately because within a technically understood and technically organised society, none of these capacities has a guaranteed place anymore. Moreover, the importance of their roles has become considerably higher than in the past. We can begin with the capacity to come to one's own understanding, which has traditionally been considered 'the basis of spiritual–scientific activity as such' (Liessmann 2009, p. 55) and which can provide answers beyond the pragmatic horizon of how to use, such as, for example, what something is, why something is the way it is or what something is for. This is followed by the capacity of *judgement,* where you can step out as a subject of (moral) action rather than merely follow laws, norms and functional literacy or copy expected practices and behaviours within the existing societal order. This means critically assessing them, if needed, as a step in the search for one's own path of potential action. Finally, we have the capacity of *imagination* that is crucial in supporting judgment since it enables us to imagine a new world 'as it might be or could have been, a world that looks differently from the world that actually exists'. As a projection of possible outcomes, this world still 'bears a close enough resemblance to the world that exists in reality to guide our actions within limits' (Tyner 2017, p. 523).

It would be appropriate and helpful to begin with some similar attempt that is conceptually sufficiently related, from which it is possible to draw and to which it is possible to add and build. One such attempt can be identified in Postman (1993, 1995). In his introductory remarks, Postman (1995) emphasises that the essence of technology education is not anything technological. Only to a small extent is it a technical subject concerning how something works and how to use something. Primarily, it is a 'branch of the humanities' (ibid., p. 191) that helps us understand, for example through history, linguistics, philosophy and the like how past and new technologies change the meaning of basic notions, capabilities and institutions, or how they 'reorder our psychic habits, our social relations, our political ideas, and our moral sensibilities' (ibid.).[7] To avoid labels of technophobia, Postman notes that this kind of technology education does not imply an a priori negative attitude against technology, since being against technology is as meaningless as being against food. Its educational potential lies in cultivating an appropriate critical attitude, which could start with recognising the double Faustian nature of technology. In practice, this would mean that students can figure out what a particular technology allows them to do and, at the same time, how it hinders or makes it impossible to do other things. Furthermore, such an atti-

7 Vlieghe (2018) calls for a very similar approach. Responding properly in an educational way does not mean just introducing new generations to 'a world of screens and digital technology so that they can adequately and skilfully use them', but rather developing 'practices that equip them with the readiness and potential to start relating to the new dominant societal and cultural technology' (p. 60). This includes the ability to understand how the technology we utilise daily and through which we learn shapes our subjectivity.

tude would need to consider that the human–technology relationship entails more than just a user and a disposable tool, to which it is necessary to add at least the reverse formative potential that technology exercises back on its users. After all, the 'act of human creation includes both the creating of the object and the object's recreating of the human being' (Schraube 2005, p. 78). In this respect, technology education should primarily train students to question from the opposite end of the spectrum what would normally be expected of such learning content, namely 'how technology uses us, for good or ill, and about how it has used people in the past' (ibid., pp. 191–192).

In *Technopoly* (1993), where Postman elaborates his idea in more detail, he begins with a meaningful discussion between the mythical King Thamus of Upper Egypt and the god Theuth in Plato's dialogue *Phaedrus* as an instructive example of how to approach the subject. In summary, the inventor god Theuth, while a guest at court, displays his many inventions before King Thamus, praising their usefulness and arguing that they should become widely available to the people of Egypt. Instead of simply accepting the praise, King Thamus judged each one and expressed his agreement or disagreement with Theuth's arguments as to why this or that invention would be useful. As is well known, their discussion finally arrives at the invention of writing. Again, Theuth claims that writing will improve people's wisdom and memory, while the king replies the opposite. Writing will distract people from exercising their own memory, since they will rely on external written signs instead of their own capacity. They will not become wise, as Theuth claims, but only gain the appearance of wisdom. The king adds that inventors are not the best at judging their inventions since admiration for their own creation easily leads them to poor judgment. Rather than continuing into the famous controversy about writing, three other points in the summarised dialogue are relevant to our discussion. First, human judgment plays a crucial role in finding the right relationship with technology. Second, there are specific criteria for this judgment, and third, Thamus does not judge the invention in relation to its use but the invention itself.

In a society that is increasingly dominated by technique (Ellul 1964) human judgement is not lost by accident or drowned under much louder enthusiasm for new gadgets that make our lives easier but is deliberately eliminated. Wherever the technological thought-world has established its sovereignty in the sphere of human affairs, primarily pursuing efficiency in every conceivable human activity, it also happens that its driving principles, such as rational calculations, systems or algorithms, tend to make human judgment obsolete, seen as plagued with faulty subjectivity, a human residue that must be removed as a source of interference with perfect functioning.[8] Thamus's judgment should remind us today of the importance of human discernment. Whenever we entirely relinquish this capacity in front of technology because it is required by its promises, predetermined proce-

8 The inauguration and formal outline of such a rational system as the system of society is found in Taylor's work *The Principles of Scientific Management* (1911). Beginning with the sphere of industrial work, Taylor maintained that workers no longer performed work according to their own judgement but following the laws of the rational system as if they were the workers' own.

dures or imperatives for efficiency, we are unknowingly 'placed at the disposal of technique and technology' (Postman 1993, p. 52), becoming a human instrument for its operations. The second lesson would be that those who invent technology are usually not best at judging their full potential since they usually see what a particular technology can do, not what it makes harder or impossible to do. The reason is not just the creator's pride or admiration (*technophilia*)[9] for the invention, which makes it difficult to judge. Perhaps even more decisively, the invention cannot be judged by the same criteria and with the same mindset typical of the skill that was constitutive in the process of its creation. As we have said, the core of technology education is nothing technical.

Perhaps the third point is the most important in outlining a new approach to technology education. As Postman (1993) noted, Thamus is not concerned 'with *what* people will write; he is concerned *that* people will write' (p. 7). This detail reminds us of an extremely important point: Technology should neither be understood nor judged as *neutral*. The prevailing perspective today is precisely the opposite. Technologies are often judged as inherently neutral, whose beneficial or detrimental value depends only on how, for which purpose, they are utilised or on their actual end-effects. Correspondingly, we often can judge retrospectively only considering effects that have already happened: therefore, too late. At the same time, the maxim of action that each technology exercises on its users and others, no matter how it is used, will remain hidden. This is why the very principle of judging technology as neutral can easily get stuck in absurdity. For example, try to judge a thermonuclear warhead as neutral technology whose good or harm depends on its use if we know that it is designed for mass annihilation and poisons the biosphere for centuries. In both cases, it produces an effect on a scale that eludes our imagination. However, we can offer a more benign example. How can we make good use of a popular digital app among adolescents if it is intentionally designed to stimulate permanent engagement by disseminating stupid content?

Since we have classified technology education as a humanities subject, it should enable students to explore the rarely questioned human dimension of technological change. This would mean understanding 'how the created world of things in its turn influences our human world' (Schraube 2005, p. 79) or how 'technological objects shape and perpetuate subjectivities' (Schwarz 2019, p. 100), that is, topics that directly concern subjectification as one of the three domains of educational purpose. An outstanding example of such an approach can be found in Günther Anders' (1902–1992) philosophy of technology. In turning his primary attention from how people use or experience technology directly to the world of artefacts and apparatuses, viewing them as outright actors[10], Anders (2012) enquires about what practices, mindsets or ways of life are established by artefacts

9 The name for this admiration could be *technophilia*, which concerns not only those directly involved in the process of creation, but also all those who look upon creations as if they could fulfil all the promises and expectations we so lovingly place in them.

10 Although Anders' reversal of perspective from the 1950s seems bizarre to say the least, it is confirmed nowadays daily, especially in journalistic and PR discourses claiming without hesitation, for example that 'AI solves', 'AI finds', 'AI decides', 'AI dreams' or 'AI predicts' (see Schwarz 2019, p. 99).

as such, regardless of how we use them, what their maxims of action are and how these maxims modify human activity, perception, emotion, language etc. In following the phenomenological motto 'back to the things themselves', Anders tries to 'illuminate the politics and ideologies, and the principles of action that are embodied in the technologies; and, finally, to ask what the things are doing, and will do, with human beings' (Schraube 2005, p. 81) or, in Anders' own words, 'how in an everyday world composed of mechanical things and apparatuses, where also humans live, we believe we are treated by our objects' (Anders 2012, p. 52). Let us try to illustrate an action maxim with concrete examples and discern the potential formative effect it exercises on human activity.

In the case of television, whether we are watching cheap reality shows or relevant political debates, we are not just influenced by the content, but above all by the constant fact valid regardless of the content that we are no longer present in anything we watch. We are not those who enter, act and appear in the world. It is the world that is delivered to our homes. We are no longer the ones who are doing the talking; we are only listening to the talking of others. We no longer see with our own eyes but watch what the eyes of others have selected for us. To use the apparatus, we must simply obey its maxims, first, to be silent, which in the long term and with heavy use means subjecting our own faculties and their development, for example of speech and imagination, to potential atrophy. This technology has been around for decades. Accordingly, it is even more interesting to move on to something just coming into mass use, such as devices or systems based on artificial intelligence. Perhaps automation is the most defining maxim of artificial intelligence, which means that it can do manual and mental activities 'instead of us', 'with as little human intervention as possible' or 'without our active comprehension'. Meanwhile, its algorithms, already incomprehensible to human language, execute commands in an opaque and almost untraceable manner. If we had to choose just one aspect that significantly impacts human activity and moral agency, it is undoubtedly the fact that AI-generated systems 'put us out of touch – in ever more powerful ways – with the things they do on our behalf' (Müller 2016, p. 101). From this depiction of non-neutrality, it would be possible to proceed on a broader socio-political level to explore which ideological promises, political agendas or economic interests are embedded in discourses, assumptions and ideas that accompany and advertise, in our case, digital technologies, as we have already indicated in the first section of this article.

In further seeking another potential segment of technology education, we can return to Plato's *Phaedrus*, where Thamus warns that the advent of new inventions could also alter the conventional meanings of words, blurring the distinction between 'wisdom' and 'appearance of wisdom' and between 'memory' and 'recollection'. How the arrival of new technological artefacts in the human world changes existing categories and affects our language should be a subject of attention that linguistics and semantics could help illuminate. Questions about how we make and interpret meaning form the basis for critical literacy and thought. Numerous examples of this kind today deserve greater linguistic sensitivity. Television has significantly changed what we mean by 'political debate', not to men-

tion how the notion of 'public' has shifted towards spectators. Epistemologically grounded in *dataism*, AI has already markedly changed what is meant by 'intelligence'. Even what we mean by 'human' or 'living being' could soon drift in the same direction, for example signifying data-processing organisms. However, it is not just that new artefacts alter the meaning of old words. It is also the case that new, even revolutionary, technologies are frequently labelled with old words, even when they rightly deserve new names. Many devices that have propelled far ahead carry obsolete names from the 'day before yesterday' that do not signal a radical, qualitative change in what they have become capable of. Moreover, if we name something so new in an old way, we may too quickly domesticate it into familiar perceptions and remove from it the aura that makes the *new* worthy of attention and relevant for our reflection.

Conclusion – the rationale for a new approach to technology education

We have demonstrated two aspects necessary for a reverse perspective, which we call 'educationalising digitalisation' to emphasise the importance of giving back the initiative to educational questions and categories. The first aspect suggests that we can properly reflect on and implement educational means only in reference to educational purposes. The second aspect proposes turning digital EdTech and technology into objects of reflection. This is our starting point for outlining a new humanistic approach to technology education.

However, we recognise that within the reign of the technological thought-world – whose reach does not extend beyond considering the entirety of human affairs through a lens of technical questions and solutions – it is becoming quite difficult to justify the reasons for engaging with the topic of technology in qualification-oriented education in a non-technical way. Yet, it appears even more difficult to cultivate a critical relationship with technology that would result in the conscious and deliberate limited use, or even non-use, of certain devices, given that such an attitude is stigmatised as a backward obstruction of technological potential. Current official discourses promoting the digital transformation of schools hinder such justifications at the educational policy level. These discourses only reiterate the fundamental maxim of efficiency by allowing only those aspects, issues and methods that potentiate the effects of this policy's agenda while reducing opposing arguments, problematisation and controversy as potential interferences in the efficient implementation of what is programmed. Thus, these discourses fully demonstrate their technical nature: maximising output by minimising interference. That is understandable for policy texts, after all. The rationale for the alternative approach to technology education must be sought and presented in opposition to them, at least in sharp contrast to the usual opening assertions that set the 'policy' tone for all the steps that follow. Namely, we live in a rapidly changing world in which technology-driven change is presented as an omnipotent and inescapable (natural) force that leaves people and education with only one option, continually updating, adapting and responding to the pace and demands of technology. Such ideologemes reduce humans to a life of adaptation as synchronised

instruments of technology (becoming the real subject of activity) – and contribute greatly to our inability to reach the problem at all.

The justification for new approaches to technological education should be sought in those few scattered chapters of the philosophy of technology or philosophical anthropology that problematise our relationship with technology from a historical perspective. Since the rise of modern science and machinery, this relationship has been nothing close to a continuum but has been marked with numerous cracks and dangerous discrepancies. 'The artificiality of human beings increases over the course of history. […] A discrepancy, a widening gulf opens between the human and its products, because human beings can no longer live up to the demands that their own products place upon them' (Anders in Müller 2016, p. 100). The complex technological artifice we produce in its turn produces a gap between various human faculties, most evidently between what we can produce and what we can imagine, between doing and feeling, knowledge and responsibility, production and human needs, destruction and construction, and ultimately between the produced instrument and the human body. Despite being human-made and maintained, our technological world is becoming increasingly opaque because it eludes both our perception and imagination. This characteristic is equally true of the 'complex intangibility of digital network structures that exceed our capability to imagine, feel and understand the impact of digital power' (Schwarz, 2019, p. 105). Setting the problem in this light, Anders' concern and care for the cultivation and deliberate stretching of our potential for language, understanding and moral imagination could also be a constitutive part of technology education as a viable attempt to restore our 'broken' relationship with technology.

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EDUKALIZACIJA DIGITALIZACIJE: NAPROTI NOVI PERSPEKTIVI IZOBRAŽEVANJA O TEHNOLOGIJI

Povzetek: V prvem delu bomo opozorili na nekatere temeljne predpostavke in protislovja sodobnih diskurzov o »digitalizaciji izobraževanja«, ki so se v veliki meri odmaknili od instrumentalne obravnave tehnologije kot sredstva za dosego cilja in ji namesto tega začeli pripisovati »primarni« status, kot da bi postala splošen pogoj za doseganje slehernih izobraževalnih ciljev. Nato bomo poskušali na problem pogledati z obratne perspektive, kot »edukalizacijo digitalizacije«, kar pomeni, da digitalizacijo in sodobno tehnologijo na splošno presojamo skozi izobraževalna vprašanja, kategorije in smotre. V drugem delu bomo s poudarkom na opolnomočenju in razumevanju poskušali utemeljiti razloge za nov pristop k »izobraževanju o tehnologiji«, ki se ne osredotoča niti na učinkovito uporabo tehnologije niti na retroaktivno obvladovanje škode zaradi njenih »stranskih učinkov«. Namesto tega bomo tehnologijo, vprašanje zasnove posameznih artefaktov in maksim njihovega učinkovanja poskušali prestaviti na mesto, kjer lahko postanejo predmet kritične refleksije in razumevanja. Zastopamo stališče, da postaja takšen razmislek bistvenega pomena za etično delovanje v svetu, ki ga tako odločilno zaznamujejo tehnologija in njeni procesi.

Ključne besede: digitalizacija, izobraževalni smotri, humanistika, izobraževanje o tehnologiji, kritična pismenost

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