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Strengthening Digital Self-Determination: Integrating Media Ethics and Artificial Intelligence into Teacher Training for Everyday School Life

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Christian Filk's research paper explores the critical intersection of media ethics and artificial intelligence in teacher education, proposing a framework to enhance students' digital self-determination. He contends that contemporary digitalized society demands more than mere technical proficiency from students; it requires sophisticated critical awareness and ethical reasoning to effectively navigate algorithmic systems while safeguarding digital autonomy. Filk's research employs a hermeneutic-recon-

structive methodology to examine how educational institutions can cultivate digital self-determination through a tripartite approach: at the personal level, by fostering critical thinking skills; at the institutional level, by implementing robust ethical frameworks and innovative pedagogical methods; and at the cultural level, by creating school environments conducive to meaningful ethical discourse. Christian Filk offers pragmatic teaching strategies while acknowledging the inherent challenges in digital ethics education, particularly the delicate balance between fostering ideal autonomy and providing necessary pedagogical guidance. His analysis culminates in the assertion that educational institutions must embrace a comprehensive strategy – integrating diverse instructional methodologies, institutional support mechanisms, and reflective school culture – to nurture not just technically proficient users but ethically conscious digital citizens capable of making principled decisions in an increasingly algorithm-driven world.[1]

*Christian Filks Beitrag untersucht die kritische Schnittstelle zwischen Medienethik und Künstlicher Intelligenz in der Lehrkräfteausbildung und schlägt einen Rahmen vor, um die digitale Selbstbestimmung von Schüler*innen zu verbessern. Er argumentiert, dass die heutige digitalisierte Gesellschaft von Schüler*innen mehr als nur technische Fertigkeiten verlangt; sie erfordert ein ausgeprägtes kritisches Bewusstsein und ethisches Denken, um algorithmische Systeme effektiv zu kontrollieren und gleichzeitig digitale Autonomie zu bewahren. Filks Forschung verwendet eine hermeneutisch-rekonstruktive Methodik, um zu untersuchen, wie Bildungseinrichtungen digitale Autonomie durch einen dreigliedrigen Ansatz fördern können: auf individueller Ebene durch die Förderung kritischer Denkfähigkeiten, auf institutioneller Ebene durch die Implementierung eines soliden ethischen Rahmens und innovativer pädagogischer Methoden, und auf kultureller Ebene durch die Schaffung eines schuli-*

*schen Umfelds, das einen sinnvollen ethischen Diskurs fördert. Christian Filk schlägt pragmatische pädagogische Strategien vor und erkennt dabei die Herausforderungen, die mit der digitalen Ethikbildung verbunden sind, insbesondere das empfindliche Gleichgewicht zwischen der Förderung einer idealen Autonomie und der Bereitstellung der notwendigen pädagogischen Anleitung. Seine Analyse führt zu der Schlussfolgerung, dass Bildungseinrichtungen eine umfassende Strategie verfolgen müssen, die verschiedene Lehrmethoden, institutionelle Unterstützungsmechanismen und eine reflektierende Schulkultur integriert, um nicht nur technisch versierte Nutzer*innen, sondern auch ethisch bewusste digitale Bürger*innen zu fördern, die in einer zunehmend von Algorithmen gesteuerten Welt ethisch fundierte Entscheidungen treffen können.*

1. Introduction

"Become who you are"
Friedrich Nietzsche
(1980 – translation C. F.)

In the current digital era, it is essential for the younger generation to develop a critical approach to digital technologies and artificial intelligence (AI). Algorithmic systems permeate various areas of life, including social networks, learning platforms, and information sources (Mayer-Schönberger/Cukier 2013; Helbing et al. 2019).

In order to thrive in this digital landscape, students must not only master digital tools but also cultivate social and moral aptitude to navigate these environments. This includes understanding the

far-reaching impact of technology, protecting personal data, and resilience to algorithmic manipulation (Boyd 2014; Helbing et al. 2019). Digital self-determination, defined as the ability to exercise control over one's own digital identity, data, and interactions, is a cornerstone of individual autonomy and responsible media use (Stalder 2016; Herzig/Sarjevski/Hielscher 2022).

1.1 Research context and methodological positioning

This study is situated at the intersection of media education, information ethics, and educational research. It aligns with the current academic discourse on digital education, which has shifted from a purely technical-instrumental understanding to a critical-reflective perspective (Buckingham 2007; Kultusministerkonferenz 2021; Knauf 2024). While earlier approaches to digital education focused on teaching technical skills, recent research has emphasized the importance of ethical reflection and self-determined action in digital contexts (Floridi 2013; Zuboff 2019).

Methodologically, this work follows a hermeneutic-reconstructive research paradigm. This paradigm aims to understand social and pedagogical practices in the context of digital transformation. It also aims to make these practices fruitful for educational practice. The study integrates a systematic review of literature with case studies and critical theory development. This methodological pluralism enables the exploration of both theoretical foundations and practical options for action, with the goal of promoting digital self-determination in educational contexts.

The research strategy is triangulated, integrating three approaches:

- *Theoretical foundation*: Systematic analysis and critical reconstruction of central concepts from the international research literature.
- *Heuristic exploration*: Exemplary case analyses of existing educational practices and concepts.
- *Normative reflection*: development of well-founded recommendations for action, taking ethical implications into account.

This methodological framework enables analysis of educational processes in the field of tension between technological innovation, pedagogical practice, and ethical orientation, and enables drawing design-oriented conclusions.

1.2 Digital self-determination, media ethics and everyday school life

Digital self-determination refers to the ability to exercise autonomous control over one's own digital activities and data. In alignment with Kant's philosophy, it signifies modern autonomy and freedom from external influence (Kant 1983). However, in today's digital society, this autonomy is increasingly challenged by algorithms and pervasive data streams (Van Dijck 2013). Educational institutions must therefore create environments in which students can critically test their freedom of choice in dealing with technologies (Selwyn/Facer 2013).

Digital self-determination is comprised of three central elements:

- *Privacy*: This includes the ability to control the personal information collected by digital technologies (Solove 2004; Acquisti/Brandimarte/Loewenstein 2015).
- *Algorithmic transparency*: This involves understanding and critically evaluating the functions of algorithms that increasingly provide access to information (Pasquale 2015; Kitchin 2017).
- *Media literacy*: This is defined as the ability to understand, critically evaluate, and responsibly use digital information (Buckingham 2007; Aufenanger 2012; Frau-Meigs et al. 2017; Filk 2020a).

Media ethics examines the moral challenges of digital technologies. Key topics include data protection, surveillance, algorithmic manipulation, and corporate responsibility (Ess 2014; Capurro 2007; Kirschläger 2021). It also develops normative principles for designing technologies that respect user autonomy (Floridi 2013; Himma/Tavani 2008).

A pioneering concept for media education comes from Gerhard Tulodziecki, Bardo Herzig, and Silke Grafe (2010), who argue that schools must enable students to act appropriately, self-determinedly, creatively, and socially responsibly in a world shaped by mediatization and digitalization. Their approach integrates media didactics and media education perspectives, systematically integrating digital media into educational processes while addressing potential risks such as manipulation and sensory overload.

A central tension in the context of digital self-determination exists between the ideal of individual autonomy and the need for peda-

gogical guidance. While the Kantian perspective emphasizes full self-determination, its implementation in the educational context initially requires structured guidance and support. This tension, which is inherent to pedagogy (Benner 2015), is particularly evident in the field of digital education. Teachers must therefore find a balance between the necessary orientation and the gradual reduction of guidance in favor of increasing student autonomy. This transition from guided reflection to self-determined action is a recurring theme in the following argument.

Integrating digital self-determination and media ethics into curricula is a moral imperative (Holmes/Bialik/Fadel 2019). Students engage with algorithm-driven technologies daily, which shape their learning, worldview, and social interactions. In addition to developing technical skills, it is essential for educational institutions to foster ethical reflection on these digital influences (Kultusministerkonferenz 2016/2017, 2021).

For students, this involves:

- *Developing media skills*: Schools offer optimal conditions for promoting critical engagement with digital technologies (Paus-Hasebrink/Kulterer/Sinner 2019; Fromme/Unger 2012; Frau-Meigs et al. 2017).
- *Protecting self-determination*: Early education in digital self-determination empowers students to maintain their autonomy and resist manipulation (Livingstone et al. 2017; Helbing et al. 2019).
- *Promoting ethical reflection*: Teachers must guide students in thinking about the ethical dimensions of AI and digital technology (Burbules/Callister 2000; Misselhorn 2018).

Teachers must combine technical competence with ethical awareness and act as role models (Hattie 2009, 2012, 2015) for responsible digital behavior (Redecker/Punie 2017).

1.3 Objectives and research question of this thesis

This paper examines how educators can guide students to a reflective approach to digital technologies. Education must extend beyond mere technical instruction to foster an ethical awareness of the impact of digital technologies (Mittelstadt et al. 2016; Rath/Krotz/Karmasin 2018). While digital participation is often perceived as inevitable, refraining from certain technologies should remain a valid choice.

The central research question guiding this work is:

How can educational institutions foster digital self-determination, equipping students with the capacity to critically evaluate algorithmic influences and make ethically sound decisions within digitalized lifeworlds?

This overarching question can be broken down into the following sub-questions:

- How can schools integrate digital self-determination as a core competence in the curriculum?
- Which pedagogical methods are particularly suitable for teaching media ethics in everyday school life?
- How can teachers promote a critical approach to AI and digital technologies?

These questions tie in with the inadequate anchoring of media education content in the German-speaking education system to date, which Wolfgang Schweiger (2012) critically highlighted in his comprehensive work on the conception of a curriculum for the subject of media studies. Schweiger notes that current media education efforts have met with limited success, despite the growing social need for sustainable media education (Schweiger 2012).

To address these research questions, the thesis employs a multi-stage, qualitative-hermeneutic methodology. The first step involves a systematic literature analysis on the topics of digital self-determination, media ethics, and AI education to record the current state of research. In a second step, the identified concepts are categorized according to Baacke's (1997) structural model of media literacy and examined for their relevance to educational processes in schools. This procedure enables the derivation of practical implications for educational practice from the theoretical foundation. In the third step, the insights gained are concretized through a critical-constructive case analysis of exemplary teaching scenarios. This methodology follows a practice-theoretical perspective that brings theoretical concepts and pedagogical practice into a productive dialogue. Current research emphasizes the ethical imperatives of integrating AI into media education by calling for transparency, accountability, and critical reflection (Floridi 2013; Helbing et al. 2019).

The work offers practical insights into anchoring digital self-determination in curricula (Frau-Meigs et al. 2017) and structures recommendations for action on three levels:

- *Curricular integration*: Expansion of existing curricula to include digital self-determination topics.
- *Didactic implementation*: Development of teaching methods to promote critical engagement with AI.
- *Institutional framework conditions*: Shaping a school culture that supports digital self-determination.

The digital transformation necessitates an educational approach that fosters ethical awareness alongside technical proficiency. The focus is not on implementing complex algorithms, but on engaging with existing digital technologies and their ethical implications.

2. Personal attitude towards artificial intelligence and digital media

In an era where digital technologies permeate life, a reflective attitude towards their influence is essential. While these technologies are shaping many areas of society, some spaces remain deliberately AI-free. Individuals must not only use digital technologies, but also question their ethical implications.

2.1 Individual responsibility and critical thinking

People are constantly encountering AI and algorithmic decision-making systems that shape their online experiences (Couldry/ Hepp 2017). Each individual must critically evaluate the function-

ality of these technologies, the collection of personal data, and the ethical consequences that arise from this (Han 2015; Couldry/Hepp 2017; Helbing et al. 2019). Mere warnings, especially to children, are insufficient. To that end, it is essential that effective digital education provides concrete alternatives and strategies for controlling personal data.

Algorithms have a pervasive influence on various aspects of the digital landscape (Gillespie 2014; Noble 2018). As these systems are based on user-generated data and distort socio-political, socio-cultural, and socio-economic realities, it is essential to critically examine their results and utilize diverse sources of information to counteract filter bubbles (Pariser 2011; Staab 2019).

Personalized advertising and content have the potential to manipulate people (Gundelsweiler/Filk/Studer 2010; O'Neil 2016; Zuboff 2019). Individuals should carefully consider what personal information they disclose. Educational institutions must prioritize raising awareness and empowering students to comprehend the intricacies of personalized algorithms. They should also develop strategies to combat manipulation. Open-source alternatives can promote digital autonomy and reduce dependence on for-profit platforms.

Raising awareness of data protection can also increase awareness of privacy (Solove 2004; Acquisti/Brandimarte/Loewenstein 2015). Regular reflection on digital habits improves the ability to assess the impact of online behavior (Hobbs 2010; Livingstone/Sefton-Green 2016).

However, implementing these theoretical considerations in school practice necessitates didactic translation. Concepts such as Kant's notion of autonomy and Floridi's information ethics provide valuable normative guidance, but their practical implementation in daily school life is essential. This can be achieved through educational processes that connect abstract concepts with students' real-life experiences. In practice, this involves analyzing algorithmic decision-making processes and making their effects visible in the everyday lives of young people. For instance, music recommendation systems can unconsciously shape taste preferences, and image filters can influence beauty standards. The key to cultivating critical awareness lies in this nexus between theory and practice.

2.2 Self-determination in a digitalized world

Taking control of one's own digital identity requires concrete steps and skills (Floridi 2013). The practical implementation of digital self-determination, as previously defined, involves understanding algorithmic functions and consciously resisting manipulative practices. It requires users to critically evaluate automated decisions and advocate for personal autonomy (Helbing et al. 2019).

A significant challenge lies in the difficulty of achieving genuine digital self-determination within commercial software ecosystems. For educational institutions, this necessitates not only imparting media skills but also fostering an understanding of alter-

native technologies. Open-source solutions offer viable alternatives, as they facilitate transparency and control.

However, it is crucial to note that personalization of digital content can potentially restrict individual freedom by forcing users into predetermined patterns of behavior (Pariser 2011; Pasquale 2015). To counteract this, it is crucial to actively seek diverse perspectives.

Practical approaches to strengthening digital self-determination combine technical measures with ethical action:

- *Technical protective measures*: These include the use of privacy-enhancing tools such as VPNs and ad blockers, as well as alternative operating systems like LineageOS for mobile devices and Linux for desktops to minimize data leakage.
- *Practice of media literacy*: Critical examination of digital content; conscious diversification of information sources; regular reflection on own usage behavior.
- *Acting ethically and responsibly*: Consideration of the social impact of one's own digital actions; respectful handling of the data of others.

While Open-Source-Software (OSS) offers important advantages for digital self-determination, its integration into educational contexts must be viewed in a differentiated way. Challenges arise due to teachers' different levels of technical knowledge, compatibility issues with existing infrastructure, and, in some cases, limited user-friendliness. A pragmatic approach would entail a staged implementation model: initially, individual open-source applications (e.g., LibreOffice or Firefox with privacy-enhancing extensions)

could be integrated into existing systems before more comprehensive solutions such as Linux systems are adopted. It is essential to approach open source not as an ideological mandate, but as a pragmatic approach that fosters introspection on digital dependencies and progressively enhances autonomy in one's digital environment. This approach encompasses the acceptance of hybrid solutions that strike a balance between practical usability and maximized self-determination.

2.3 Self-reflection and conscious use of AI

Self-reflection is central to exercising digital self-determination. Individuals must evaluate how digital technologies shape their lives and whether they actively control their digital use or succumb to algorithmic influences (Couldry/Hepp 2017). Such reflexive practices are essential for maintaining control over digital identity (Stalder 2016).

Autonomy necessitates awareness of digital habits and their effects. By reflecting on screen time, data sharing, and reactions to algorithmic recommendations, individuals can develop a self-determined digital identity (Koltay 2011).

Digital self-determination is inextricably linked to ethical responsibility. Individuals must protect their data, respect the privacy of others, and avoid harmful behavior (Floridi 2013; Ess 2014). However, ethical challenges are often created by companies, while the responsibility for dealing with them is transferred—especially to

young people—who do not have the power to tackle systemic problems.

It is imperative to cultivate a reflective, informed, and ethical approach to digital media to ensure individual empowerment and the well-being of the digital community. Education plays a central role in equipping the next generation with the skills to question, understand, and shape digital environments (Herzig/Sarjevski/Hielscher 2022).

3. The institutional attitude of the school: Media ethics as an integral part of school education

Schools have a significant responsibility in shaping ethical understandings of digital media and AI (Van Ackeren et al. 2019; Knauf 2024). By integrating media ethics into education, schools can equip students with the critical thinking skills necessary to navigate a digitalized society.

3.1 The role of the school as an institution and the use of digital technologies

Media ethics underscores the necessity for digital technologies to be designed fairly. Crucial to this is the necessity of technologies promoting social well-being and preventing discrimination (Himma/Tavani 2008; Filk 2010). In alignment with Rawl's theory of justice, educational institutions can promote the critical thinking skills of students by encouraging them to question the design

of algorithms that affect vulnerable groups (Rawls 1971; Misselhorn 2018). Students themselves are among the vulnerable groups affected by these technologies. Education should equip students with the knowledge to recognize and respond to their own exposure to digital risks.

Schools play a pivotal role in preparing future citizens for life in a digitalized world (Selwyn/Facer 2013). Beyond imparting digital skills, it is crucial for schools to foster an ethical approach to technology. Integrating media ethics as a cross-curricular topic enables students to understand the social and moral dimensions of digital media (Buckingham 2007; Frau-Meigs et al. 2017).

Schools must lead by example, demonstrating responsible digital behavior in their own practices. This entails the selection of privacy-oriented IT systems and transparent policies regarding AI use. While transparency about algorithmic control is important, it alone is not sufficient to empower students to effect change. Often, students feel compelled to comply with digital systems, as failure to do so could result in exclusion from essential educational opportunities.

The use of learning platforms that comply with data protection regulations and the limitation of surveillance technologies can strengthen ethical digital practices (Solove 2004; Kultusministerkonferenz 2016/2017, 2021).

The teaching of digital skills must go beyond technical skills and include ethical perspectives on digital media. Students need to

understand the mechanisms of algorithmic decision-making and address the ethical challenges of AI (Floridi 2013; Ess 2014). Teachers must develop curricula that encourage critical examination of technology (Redecker/Punie 2017).

However, the implementation of ethical education concepts in school practice is often hindered by structural limitations that must be taken into account. Educational institutions operate with limited resources, existing IT infrastructures, and administrative requirements that cannot be altered in the short term.

The market power of large technology companies and their influence on education systems, for instance through educational discounts or school licenses, creates dependencies that make critical reflection difficult. Instead of disregarding these tensions, it is crucial to acknowledge them as subjects of ethical reflection. By doing so, students can develop a nuanced understanding of the institutional constraints and power dynamics that shape their digital environment. This meta-reflection fosters a nuanced understanding of the scope for action, enabling pragmatic action within existing structures while maintaining fundamental criticism.

3.2 Responsibility of the school for shaping an ethical framework

Schools must establish a clear ethical framework for the use of digital technologies. This includes integrating media ethics into curricula, school regulations, and data protection guidelines (Holmes/Bialik/Fadel 2019; Kultusministerkonferenz 2016/2017; Frau-Meigs et al. 2017). Addressing ethical issues in various sub-

jects ensures that students continuously engage with the technical and social dimensions of digital media.

It is imperative that media ethics be firmly anchored in the curriculum, whether in subjects such as ethics, computer science, social studies, philosophy, or science courses that address AI (Gesellschaft für Informatik 2016; Frankfurt-Dreieck 2019; Lin et al. 2020). It is essential to define specific learning objectives that emphasize responsible digital practices.

Interdisciplinary projects offer students the opportunity to explore ethical issues in digital media. Investigating the ethical implications of algorithms in social media or public surveillance fosters critical thinking and promotes self-determined action (Hobbs 2010).

Furthermore, schools must develop transparent privacy policies that clearly outline the collection, use, and protection of personal data (Acquisti/Brandimarte/Loewenstein 2015; Solove 2004). However, it is important to recognize that students cannot reasonably refuse imposed digital systems. Educational institutions must acknowledge these power imbalances and prioritize minimizing mandatory data collection.

3.3 Institutional obligation to reflect on AI and its ethical implications

AI raises questions about morality and responsibility. Educational institutions can facilitate thoughtful discussions about the distribution of responsibility among developers, users, and the technology itself (Floridi/Sanders 2004). However, it is important to

note that portraying AI as a potential moral agent presupposes cognitive capacities that it does not possess.

Schools should prioritize the discussion of how AI systems should be designed to simulate decision-making and how ethical responsibility should be assigned to developers and users.

Organized forums, debates, and interdisciplinary seminars provide platforms for discussing the ethical challenges posed by digital technologies. The involvement of teachers, students, and external experts fosters critical thinking and deepens the understanding of ethical dilemmas in digital media (Buckingham 2007; Ess 2014).

Empowering students to conduct independent projects, such as researching data protection in everyday school life or developing guidelines for responsible digital behavior, fosters critical thinking and ethical decision-making skills (Hobbs 2010).

The ethical implications of AI and digital technologies extend beyond the classroom. Involving the wider school community through information events, parent-teacher meetings, and active student councils ensures that ethical considerations permeate all levels of school life (Redecker/Punie 2017).

Schools must adopt a proactive and reflective institutional stance on media ethics. By integrating ethical frameworks into curricula, policies, and everyday practices, educational institutions can develop ethically responsible digital citizens.

4. Digital and ethical educational environments as a key pillar of school culture

Cultivating an inclusive, critically reflective, and ethically sound school culture is essential (Knauf 2024). Such a culture ensures equal access to technology and promotes the ability for informed, responsible digital participation.

4.1 Inclusivity and digital participation

An inclusive school culture is fundamental for preparing students for success in a digitalized society (Filk 2019; Filk/Schaumburg 2021). It ensures that digital resources are accessible to all learners and supports equal opportunities to acquire digital skills (Warschauer/Matuchniak 2010). To bridge the digital divide, schools must provide equal access to essential tools and empower all students to develop critical digital skills (Selwyn 2011).

Beyond mere access, cultivating an inclusive school culture entails actively engaging students in shaping their digital learning environment. However, a critical question arises: should the focus be solely on adapting to digital tools, or should students critically assess whether certain technologies belong in the classroom at all? A participatory approach should facilitate discussions about how digital technologies can be used responsibly and whether they should be used at all (Livingstone/Sefton-Green 2016).

4.2 Ethical reflection and critical debate

A robust ethical framework in the school context requires the continuous critical examination of digital technologies and AI. Students must be equipped to discern both the transformative potential and inherent risks of these technologies. Key areas for ethical reflection include privacy, algorithmic bias, and surveillance practices (Floridi 2013; O'Neil 2016; Ess 2014).

It is essential to integrate ethical considerations into the daily school routine. Regular class discussions, school assemblies, and parent-teacher discussions should serve as forums to explore the opportunities and challenges of AI and digital media. Through sustained engagement, ethical issues become integrated into the fabric of the school's culture, rather than being confined to isolated lessons (Hobbs 2010; Ess 2014).

The systematic inclusion of media ethics in curricula strengthens students' ability to navigate the digital world responsibly. Regular discussions on privacy, surveillance, and algorithmic bias help students develop a nuanced understanding of ethical challenges and promote the ability to make informed decisions (Frau-Meigs et al. 2017; Hobbs 2010).

4.3 Participation and cooperation

A sustainable ethical school culture thrives through the active participation of the entire school community. Establishing platforms for regular dialog between students, teachers, and parents

is crucial for the discussion of digital self-determination and media ethics (Redecker/Punie 2017).

The classroom environment should be transformed into a dynamic space conducive to critical reflection. Through debates, role plays, and case studies, students can explore ethical dilemmas, articulate their viewpoints, and deepen their digital literacy. The objective is to enhance existing teaching strengths by integrating the ethical dimensions of technology into learning, thereby fostering reasoned, autonomous positions (Buckingham 2007).

School assemblies and project weeks provide additional opportunities to address ethical issues relating to digital technologies. These formats encourage students to develop innovative solutions to current ethical challenges and to think critically about their responsibility in the digital society (Hobbs 2010; Livingstone/Sefton-Green 2016).

To cultivate a digital and ethical school culture, a deliberate, multi-layered approach is necessary. This approach should promote inclusivity, foster critical reflection, and enable active participation. Ensuring equal access to digital resources, integrating ethical debates into everyday learning, and creating dialogical spaces for collective reflection are key strategies that schools can implement to raise a generation of digitally competent and ethically aware citizens.

5. Practical examples: Promoting digital self-determination in everyday school life

Promoting digital empowerment in schools requires a dual approach that combines individual empowerment with institutional frameworks (Filk 2018). Students must be empowered to engage critically with digital technologies, while schools develop ethical guidelines that ensure reflective digital practices (Buckingham 2007).

5.1 Combining individual and institutional perspectives

Empowering female students to navigate digital environments in a self-determined way begins with promoting critical media literacy. Students should learn to question personalized algorithms, make privacy-conscious decisions, and actively use digital tools (Frau-Meigs et al. 2017; Hobbs 2010).

An effective method to promote critical thinking about algorithmic systems is to analyze voice assistants such as Siri, Alexa, or Google Assistant. By examining the data collected by these systems, learners can explore algorithmic processes. However, it is important to note that access to this data is strictly controlled by the technology industry. As the Schrems II ruling (European Court of Justice 2020) demonstrates, technology companies are not willing to share such data transparently. Consequently, students are limited to working with secondary analyses, theoretical models, or experimental simulations as substitutes for actual data. Never-

theless, reflecting on this lack of transparency can itself be an important learning outcome (Floridi 2013).

In addition to individual reflection, institutional consideration of ethical issues relating to digital technology is also key. Schools should develop clear policies that govern the ethically responsible use of digital technologies, including privacy policies, secure management of learning platforms, and controlled use of surveillance technologies (Redecker/Punie 2017).

One example of the integration of digital technologies into everyday school life is the use of learning platforms such as Moodle or Microsoft Teams. Ensuring the responsible handling of student data necessitates strict data protection practices. However, questions remain regarding the ability of educational institutions to effectively guarantee data protection when utilizing commercial platforms such as Microsoft Teams. Parents may unintentionally compromise their children's digital autonomy by accepting the terms of use. Opting out is often not a realistic option, as students who refuse risk exclusion from essential learning activities (Solove 2004).

Case studies are a particularly suitable method for addressing the ethical challenges posed by AI and digital technologies. By examining real-world examples, students can develop a deeper understanding of how algorithmic systems work and how they influence perception and decision-making processes.

A central topic is the algorithmic influence on social media. Students examine how platforms provide customized content and how filter bubbles are created. This targeted selection of information can have a significant impact on opinion formation and raises important ethical questions about algorithmic control and its impact on democratic discourse (Pariser 2011).

While exercises like these raise awareness, they rarely lead to significant changes in behavior. This underscores a fundamental challenge: awareness alone is insufficient. Educational institutions must explore viable alternatives and systemic solutions that empower students to make meaningful digital choices.

Christian Swertz (2023) expounds on this viewpoint through his reflections on the public sphere of media education. He asserts that effective media education is inextricably linked to the creation of heterogeneous public spheres. His approach involves organizing diverse media types—including free, public, commercial, state-run, and scientific media—into distinct categories, with the aim of fostering a pluralistic discourse space that encourages critical reflection and democratic participation.

5.2 Practical applications in the classroom

The theoretical concepts of digital self-determination can be imparted through practical teaching units. These units integrate knowledge transfer with experiential learning and critical reflection.

One such unit is titled 'Who decides what you See?'. This unit focuses on algorithmic curation in social media and search engines. Through a comparative analysis of personalized content, students will discover how recommendation algorithms function. They investigate:

- The variation in search query results across different users.
- The personal data used for personalization.
- The ethical implications of non-transparent filtering.

The unit aims to raise awareness of filter bubbles and promote the active search for diverse sources of information (Noble 2018; Pariser 2011).

Media diary to reflect on usage. In this exercise, which lasts several weeks, students systematically document their digital interactions. They record:

- The type and duration of the services used.
- The recommended content and its relevance.
- Their emotional reactions to digital interactions.

The subsequent analysis reveals patterns of algorithmic influence and encourages more conscious media use (Livingstone/Sefton-Green 2016).

Data protection analysis 'My data, my decision'. This exercise places students in the actual conditions of digital services. They analyze and develop privacy policies for popular apps:

They examine the types of data collected, how companies use it, and the actual control options users have. The exercise also addresses structural limits to user autonomy due to technical and economic conditions (Solove 2004).

These practice-oriented approaches promote a comprehensive understanding of digital mechanisms and enable students to make informed decisions. They integrate data protection awareness with critical media skills, thereby establishing the foundation for self-determined digital action.

5.3 Challenges for the self-determination of students

A central aim of these teaching modules is to empower students to actively defend their digital self-determination. This includes a thorough examination of personal media use and in-depth reflection on the ethical challenges posed by AI and algorithmic control (Stalder 2016).

Students are encouraged to reflect on which areas of life—from entertainment to communication to education—are increasingly controlled by algorithms and digital systems (Floridi 2013). This reflection fosters the development of strategies to strengthen autonomy in digital interactions.

Through continuous dialogue and reflective exercises, students learn to protect their digital autonomy against external influences from AI systems. This empowerment enables them to act confidently and make self-determined decisions in a digitalized environment (Floridi 2013; Helbing et al. 2019).

To promote digital empowerment in everyday school life, it is essential to focus on both individual empowerment and institutional commitment. By integrating reflective exercises, practical case studies, and structured discussions, schools can provide students with the tools to critically engage with digital technologies.

6. Institutional framework conditions: The role of teachers and schools

The implementation of the didactic concepts and teaching units described above requires an appropriate institutional framework. Schools and teachers share responsibility for creating a learning environment that promotes digital self-determination.

6.1 The teacher as role model and mediator

Teachers play a key role in teaching digital skills (Ess 2014; Redecker/Punie 2017). Their effectiveness depends depends on several factors:

Authenticity through reflective practice: Educators should continuously reflect on their own digital behavior and align it with their ethical convictions (Floridi 2013). This introspective process entails asking questions such as:

- Which digital tools do I use in the classroom and why?
- What data protection practices do I implement?
- To what extent do I embody the digital self-determination that I want to convey?

In addition, educators should act as role models in digital activities. By consciously choosing privacy-friendly tools and transparently communicating about digital practices, teachers demonstrate responsible media behavior. In doing so, they establish a model for students.

A balanced skills teaching approach: Successful media education combines technical skills with ethical reflection and critical thinking (Nelson 1986). Teachers should avoid merely applying technical skills and instead promote a comprehensive digital education that enables students to critically evaluate technological developments and make ethically sound decisions (O'Neil 2016; Buckingham 2007).

6.2 Institutional support for teachers

Schools have a significant responsibility to empower teachers to address ethical issues in the classroom. This support should include dedicated resources, professional development opportunities, and a school culture that prioritizes ethical reflection (Redecker/Punie 2017).

To ensure the effective implementation of ethical media education, schools must pay attention to several aspects:

- *Curricular anchoring*: Systematic integration of ethical issues relating to digital. technologies in curricula for various subjects (Holmes/Bialik/Fadel 2019; Lin et al. 2020).

- *Further training concepts*: Regular qualification programs that train teachers in both the theoretical principles of media ethics and practical teaching methods (Buckingham 2007; Hobbs 2010).
- *Structured spaces for reflection*: Institutionalized formats such as ethics working groups, school assemblies, and discussion forums that enable a continuous dialogue on current digital developments.
- *Practical tools*: Provision of teaching materials, digital tools, and evaluation instruments that translate ethical reflection into concrete pedagogical practice.

6.3 The role of school culture in ethical education

An ethically reflective school culture is fundamental to effective digital education. It permeates all facets of school life and establishes a framework in which ethical engagement with digital technologies becomes the norm (Livingstone/Sefton-Green 2016).

Characteristics of such a culture are:

- *Living ethical values*: The consistent embodiment of ethical principles in everyday school life has a long-term impact on students' behavior outside the classroom (Floridi 2013).
- *Shared responsibility*: Involving all stakeholders (teachers, students, parents, school management) in ethical reflection processes creates a shared understanding of digital responsibility (Nucci/Narvaez/Krettenauer 2008).
- *Adaptability*: Given the rapid pace of technological change, it is essential to continuously scrutinize and adapt school culture. Regular reviews of ethical guidelines and pedagogical concepts ensure their relevance and effectiveness.

Schools and teachers must collaborate to establish the ethical framework that guides students through the complexities of the digital world. Teachers and schools have complementary roles: teachers are direct role models and facilitators, while schools are institutional enablers. Together, they form the basis of effective ethical education for the digital age.

7. Teaching methods: Promoting digital self-determination in practice

Teaching digital self-determination requires a variety of didactic approaches that combine technical skills development with ethical awareness raising (Carr 2003). The focus should be on methods that are practical, participative, and student-centered (Buckingham 2007).

7.1 Didactic approaches to teaching AI and media ethics

Teaching AI skills and media ethics requires methodological diversity and innovative didactic concepts that go beyond traditional teaching formats. While the practical teaching applications described above are aimed at reflecting on existing technologies, the approaches presented here focus more on creative design and in-depth ethical debate.

Project-based learning offers a particularly effective framework for actively engaging with digital self-determination (Larmer/Mergendoller/Boss 2015). This method is characterized by the following features:

- *Self-directed work*: Students develop their own questions on AI topics.
- *Authentic problems*: Dealing with real ethical dilemmas of digital technologies.
- *Interdisciplinary perspective*: linking technical, ethical and social dimensions.
- *Product orientation*: creation of concrete artifacts such as prototypes, analyses or guidelines.

An exemplary project is the critical analysis of AI use cases: Students examine an AI system of their own choice (e.g., facial recognition software or voice assistants), document its functional principles, identify ethical problem areas, and develop recommendations for responsible use or regulation (Floridi 2013; Noble 2018).

Discursive methods complement the project-based work through structured discussion of ethical issues:

- *Dilemma discussions*: Dealing with complex decision-making situations without clear moral solutions.
- *Change of perspective*: Viewing technological developments from different stakeholder positions.
- *Ethical case analyses*: systematic examination of specific use cases according to ethical criteria.

These didactic approaches promote key skills for the responsible use of digital technologies:

- Critical judgment towards AI-supported services and products.
- Ethical reflection skills on questions of privacy, autonomy, and justice.
- Design competence for human-centered technological development.

In contrast to the everyday exercises described above, the focus here is on in-depth analysis and the development of future-oriented options for action (Hobbs 2010).

7.2 Group work and reflective exercises

Group work and reflective exercises are integral components of this approach. Case studies and role-plays facilitate in-depth exploration of the ethical dimensions of digital technologies. These cooperative learning methods promote critical thinking and the ability to adopt different perspectives.

Case study work (Andersen/Schiano 2014) enables the analysis of real or hypothetical scenarios. One notable case study is 'The algorithm that determines your future', which involves students analyzing an algorithm for allocating university places. They investigate:

- Functionality and database of the algorithm.
- Potential discrimination mechanisms and transparency problems.
- Possible improvements for more fairness (O'Neil 2016; Mittelstadt et al. 2016).

Role-playing games (O'Toole/Burton/Plunkett 2005) promote empathy and negotiation skills through simulated decision-making

situations. In the role play 'Development of an ethical AI', students act as an ethics committee and develop guidelines for a new AI system. They are tasked with balancing data protection, fairness, and economic interests (Himma/Tavani 2008).

These methods are designed to achieve key learning objectives:

- Promotion of differentiated problem analysis.
- Development of an understanding of ethical conflicts of interest.
- Development of practical solutions for ethical challenges.

7.3 Reflection exercises to promote digital self-determination

Regular self-reflection is essential for the development of digital autonomy. Students should be guided to consciously question their digital practices (Filk 2020b; Solove 2004).

Effective reflection formats include:

- *My digital identity*: Students document and analyze their online presence and develop an awareness of their digital self.
- *The power of algorithms*: This involves reflecting on the influence of algorithmic recommendations on personal decisions and developing counter-strategies (Han 2015; Zuboff 2019).
- *Digital diary*: This format involves systematic documentation of media use and subsequent critical evaluation.

These reflexive practices are aimed at:

- Fostering critical self-awareness in the digital space.
- Developing individual data protection strategies.
- Promoting autonomous, informed decision-making processes.

The integration of diverse teaching methods—ranging from project-based to cooperative and reflective approaches—establishes a comprehensive pedagogical strategy to cultivate digital self-determination. It enables students to understand the complex technical and ethical dimensions of digital technologies and to navigate them in a self-determined way.

8. Conclusion and outlook

This work demonstrates that promoting digital empowerment and media ethics in schools necessitates an integrative approach that operates on three interdependent levels: personal, institutional, and cultural. Each level plays a crucial role in the development of digitally literate and responsible citizens.

8.1 Three levels of digital self-determination and media ethics

At the individual level, students must be empowered to engage critically with digital technologies and make self-determined decisions. This includes developing media literacy and critical thinking skills to protect their own digital identity and cultivate a conscious approach to AI and digital media (Livingstone/Sefton-Green 2016). By fostering an environment that encourages students to question and analyze digital influences, schools can effectively promote informed agency.

At an institutional level, schools must implement ethical standards and pedagogical methods that integrate media ethics and digital self-determination into the curriculum (Kultusministerkon-

ferenz 2016/2017). Teachers, in their role as facilitators, guide students through the complex landscape of digital technologies. The deliberate incorporation of ethical discussions and reflective practices enables students to grapple with the ethical implications of technology use (Redecker/Punie 2017).

A robust school culture is essential for maintaining ethical dialog and practice (Knauf 2024). An environment that fosters open discussions between students, teachers, and parents creates a shared understanding of digital self-determination and media ethics (Herzig/Sarjevski/Hielscher 2022). This cultural framework reinforces individual and institutional efforts and catalyzes the development of a coherent, ethically grounded approach to digital education.

These levels underscore the pivotal role of schools and educators in nurturing a generation that is not only technologically proficient but also ethically conscious. This generation must be equipped with the capacity to utilize digital tools responsibly, while also cultivating a discernment of their societal implications (Hobbs 2010; Floridi 2013; Filk 2020a).

8.2 Opportunities and challenges for a digital school culture

The continuous development of a school media culture that emphasizes both individual autonomy and institutional responsibility offers significant opportunities (Filk 2018). Schools can lead the way in promoting digital empowerment and inspiring innovation and creative problem solving (Stalder 2016). A reflective and ethi-

cal school environment strengthens individual critical thinking and promotes collaborative solutions to emerging digital challenges (Livingstone/Sefton-Green 2016).

However, establishing and maintaining a digital school culture that consistently promotes self-determination and ethical engagement remains complex. The rapid development of digital technologies necessitates continuous adjustments in teaching methods, curricula, and institutional guidelines. Ensuring that educators receive ongoing training in digital media and ethics is a significant challenge, as it is essential to maintain their effectiveness in an ever-changing technological landscape (Hobbs 2010). Flexible curricula and innovative methods are essential to address the ethical dimensions of new digital tools and platforms (Redecker/Punie 2017).

8.3 Future research opportunities and pedagogical developments

Future research should explore innovative didactic methods that integrate media ethics more deeply into everyday school life. Interdisciplinary approaches that combine technology, ethics, and pedagogy hold the potential to transform the teaching and understanding of digital self-determination. The development of novel teaching formats that prioritize ethical reflection is critical to adapting to the rapid pace of digital change.

Empirical testing of new educational formats is essential. Research projects that design, implement, and evaluate innovative educational strategies can identify best practices to promote me-

dia ethics and digital empowerment (Mittelstadt et al. 2016). Such initiatives should prioritize the long-term impact of these approaches on students' digital behavior and ethical decision-making processes. Longitudinal studies are particularly important to understand how educational interventions influence students' digital autonomy over time (Paus-Hasebrink/Kulterer/Sinner 2019). By tracking changes in behavior after participation in media ethics programs, researchers can gain valuable insights into which strategies are most effective in promoting self-determined digital citizenship (Buckingham 2007).

In summary, integrating digital empowerment and media ethics into education requires a holistic, multi-layered strategy that encompasses personal, institutional, and cultural domains. Collaborating with educators, schools can foster an environment that encourages ethical reflection and critical engagement with digital technologies. As digital technologies continue to evolve, educational practices must evolve as well to ensure that future generations are not only competent technology users, but also conscientious, ethical digital citizens.

Anmerkung

1 This essay goes back to a lecture and workshop by the author on the topic "Digital self-determination – media ethics and Artificial Intelligence in everyday school life" as part of the school development day (Schulentwicklungstag, SET) at the Rendsburg-Eckernförde Vocational Training Center (Berufsbildungszentrum Rendsburg-Eckernförde, BBZ) in Rendsburg, Schleswig-Holstein (Germany), on 07.10.2024.

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