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Autonomy and Algorithms: Tracing the Significance of Content Personalization

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The proliferation of algorithmic technologies and artificial intelligence is fueling a public and research debate concerning their impact on human autonomy. When used for disseminating information, algorithms can aid decision making while simultaneously constricting human choice. This research makes a dual contribution to this discussion. First, it clarifies the concept of autonomy by identifying three central conceptual approaches to the notion in terms of freedom of choice, authenticity, and responsiveness to reasons. Second, based on interviews with editors in chief and technologists, it traces how these approaches to autonomy shape different articulations of the significance of algorithmic personalization technologies in relation to audience autonomy in journalistic media. The analysis suggests that personalization technologies can both enhance and impede audience autonomy, depending on the approach to autonomy—at times, even under a single conceptualization. Our discussion of the findings provides a nuanced view of the interaction between different approaches to autonomy, highlighting the complexities of balancing autonomy-related concerns and benefits.

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The proliferation of algorithmic technologies and artificial intelligence (AI) is fueling a public and research debate concerning their social and societal implications. This discussion has focused on the growing influence of these technologies in shaping human lives and interactions. Algorithmic systems may enhance human autonomy in an overflowing information environment, narrowing down alternatives to aid human comprehension. However, as algorithms increasingly influence decisions affecting us, "it is often not clear whether and how behavior is one's own" (Savolainen & Ruckenstein, 2024, p. 2). The opaqueness of algorithmic systems can threaten autonomy by constricting the space for human choice and decision making (e.g., Mittelstadt, Allo, Taddeo, Wachter, & Floridi, 2016), and preserving human autonomy often features in attempts to guide the development of algorithmic systems (e.g., Floridi & Cowls, 2019). Despite the widespread deployment of the concept, however, there is ambiguity about the nature of the autonomy under issue. Simultaneously, the constraints algorithmic systems pose to human autonomy are seldom explicated.

In this article, we present a dual contribution to the developing discussion on algorithms and autonomy. First, drawing on philosophical and communication research, we clarify autonomy by distinguishing three key approaches: autonomy as freedom of choice, authenticity, and responsiveness to reason. Second, we examine media professionals' articulations of audience autonomy in contexts where algorithms are used to disseminate information with societal implications, such as content personalization in journalistic media. While algorithmic recommendations are routinely employed by social media platforms, providing content for users based on sociodemographic and behavioral data, personalization is also implemented in journalistic media (Bodó, 2019; Helberger, 2019; Rydenfelt, Haapanen, Haapoja, & Lehtiniemi, 2024; Thurman, Moeller, Helberger, & Trilling, 2019). However, with few exceptions, research and discussion concerning autonomy in journalistic media have typically revolved around journalists and newsrooms rather than the impact of these technologies on audience autonomy. In our empirical study, drawing on interviews with editors in chief and technologists in Finnish journalistic media, we examine how the significance of algorithmic personalization technologies in relation to audience autonomy is articulated and how media professionals who make decisions concerning the introduction of algorithmic technologies attempt to navigate the emerging issues of audience autonomy. Based on our analysis, content personalization is articulated as enhancing autonomy according to one approach yet impeding it from another. Even under one approach to autonomy, the same personalization technologies are described as facilitating and limiting autonomy. Furthermore, our findings reveal that different approaches to autonomy may carry distinct implications for identifying someone as autonomous. The concept of autonomy occupies diverse normative roles within social practices. Our analysis underlines how different approaches to this notion may be differently suited to a particular role. Our discussion provides a nuanced view of how concerns over autonomy interact and the kind of balancing that unfolds between them in the development of algorithmic technologies.

Theoretical Background

Autonomy in Peril?

Algorithmic technologies are often seen as introducing new threats to autonomy because of their pervasive effects on behavior and decision making. Three lines of argumentation for three interrelated threats can be identified. The first emerges in the literature on the ethics of algorithms (e.g., Mittelstadt et al., 2016) and AI ethics (e.g., Floridi et al., 2018), which discusses the implications of the "autonomous" operation of algorithmic technologies for human lives and societies. These technologies are seen as introducing risks, as "we may delegate important tasks and above all decisions" to them, undermining human intervention or oversight (Floridi et al., 2018, p. 693). The second threat is grounded in the mechanisms through which human choice is affected by algorithmic technologies. Algorithmic systems are viewed as modes of "regulation by design" (Yeung, 2016), providing choice architectures within which users' decisions and behaviors can be affected or "nudged" without forcing or rigidly excluding choices (see Thaler, Sunstein, & Balz, 2013). The third threat arises from the goals of data production and its algorithmic exploitation and is articulated in accounts of the economic and political "logics" underlying contemporary socio-technical developments. "Surveillance capitalism," Zuboff (2019) argues, establishes a global apparatus that predicts and modifies behavior, threatening decision making and autonomy. Similarly, Couldry and Mejias (2019) claim that "data colonialism" exploits humans by appropriating social and individual life as data, endangering the very integrity of the self by invading the space of making and reflecting on choices.

A prominent response to concerns over the potential harms of algorithmic systems is the promotion of ethical principles to guide their development and governance (Munn, 2023). Normative declarations outlining ethical principles, tenets, and guidelines for algorithmic technologies and AI have proliferated. By 2020, one inventory had identified around 170 guidelines by tech firms, industry alliances, research institutes, NGOs, governments, and other organizations (AlgorithmWatch, 2020). Human autonomy typically appears in them, sometimes under terms such as human control, freedom, choice, consent, self-determination, liberty, or empowerment. Attempts have been made to determine whether these declarations converge around common themes. Fjeld, Achten, Hilligoss, Nagy, and Srikumar (2020) identify a normative core of eight themes, including human control of technology; Jobin, Ienca, and Vayena (2019) classify such principles into 11 categories, one of which is freedom and autonomy; and Floridi et al. (2018) propose the four core principles of bioethics, including autonomy, supplemented by explicability. They suggest autonomy as necessary for "striking a balance between the decision-making power we retain for ourselves and that which we delegate to artificial agents" (Floridi et al., 2018, p. 698).

Similar concerns over autonomy have been raised in media and journalism research (Dodds, de Vreese, Helberger, Resendez, & Seipp, 2023; Kim & Jin, 2023; Wandels, Mast, & Van den Bulck, 2023). Algorithmic technologies are argued to constrain journalistic autonomy by requiring conformity to digital platform algorithms to advance content distribution (Peterson-Salahuddin & Diakopoulos, 2020; Simon, 2022). Moreover, choices made by algorithms in the production and distribution of contents are seen as influencing—even replacing—editorial decision making and autonomy (Bucher, 2017; Hansen & Hartley, 2023; Just & Lazler, 2017; Rydenfelt, 2022).

However, the discussion on autonomy and algorithmic technologies needs further development on two fronts. First, while autonomy frequently emerges in statements of central values or norms regarding algorithmic systems and AI, autonomy itself—or what exactly is in peril—has not received detailed attention in this context, and the concept is often used vaguely. This conceptual flexibility can inspire an approach that aims to gather and delineate alternative understandings of autonomy (see Savolainen & Ruckenstein, 2024) rather than pin down autonomy. In broad terms, however, although autonomy has multiple meanings in different contexts (Dworkin, 1988, pp. 5–6; Feinberg, 1989), it is commonly interpreted as self-governance or the ability to rule oneself. Second, the discussion surrounding autonomy in media has typically revolved around journalists, editors, and newsrooms (with a few exceptions to be discussed). However, in journalistic contexts, the question of autonomy also pertains to the audience.

Indeed, it has been argued that the interactivity of media use affords the audience increasing control over content, which in turn augments "audience autonomy" (Napoli, 2012; see Costera Meijer, 2020). Algorithmic technologies play a part in this development. With the ability to track how individuals consume news in real time, the media have been seen as becoming more attuned to the wants and interests of the audience (Anderson, 2011; see Fürst, 2020; Wendelin, Engelmann, & Neubarth, 2017). Algorithmic personalization of content may be viewed as the most recent stage in this audience-directed development, providing the audience with increased opportunities to influence content (Rydenfelt et al., 2024).[2] However, personalization may also produce new imbalances in the relationship between the media and their audiences (see Helberger, 2016; Monzer, Moeller, Helberger, & Eskens, 2020; Rydenfelt et al., 2024). Algorithmic technologies that personalize content influence the choices available to and made by the audience, and this influence may be more or less detectable to them (see Thurman & Schifferes, 2012). Moreover, algorithmic systems may influence content, including the general sentiment orientation of news (see Wu et al., 2022).

To address both gaps in the research, we aim to provide a nuanced understanding of different approaches to autonomy and study their emergence with respect to media audiences. Drawing on philosophical and communication research, the remainder of this section identifies and examines three central approaches to autonomy. After this, we deploy these conceptions in our empirical analysis, focusing on a context where novel algorithmic technologies are introduced with implications for the role and choices of the audience: personalization in journalistic media.

Three Approaches to Autonomy

Autonomy as Freedom of Choice

In the recent literature on algorithms in journalism, autonomy is implicitly or explicitly associated with freedom of choice. A conceptual point of departure is the distinction between negative and positive

[2] Early work on recommender systems already framed the technology as assisting individuals in receiving recommendations from other consumers (e.g., Resnick & Varian, 1997). While early attempts to personalize content were implemented in sports journalism in the 1980s, between 2010 and 2016 news outlets began to introduce personalization technologies with mobile applications (Kunert & Thurman, 2019).

freedom or liberty: Autonomy has been explored in terms of both (negative) freedom from external constraints and forces and (positive) freedom to choose from alternatives.[3] Concerns about the reduced autonomy of media professionals have been associated with diminishing negative liberty due to external economic and political pressures. For example, the journalistic media has been argued to adapt to the algorithmic logics of social media (Simon, 2022). By contrast, concerns for the autonomy of audiences have been connected to both kinds of liberty. It has been proposed that algorithmic news recommendations may infringe on a user's autonomy, understood as negative liberty, by showcasing content that contradicts their choices; simultaneously, algorithmic news recommendations can bolster autonomy, viewed as positive liberty, by offering a broad selection of content (Helberger, Karppinen, & D'Acunto, 2018).

Freedom or liberty, however, faces significant limitations when examining the full extent to which algorithmic technologies may be perceived as threatening human autonomy. Even if an agent is free to choose and act—both in the negative and positive senses—the motivations that prompt the agent's action may be attributed to manipulation and coercion. This issue is reflected in the philosophical literature, where autonomy is typically distinguished from freedom or liberty in terms of more stringent conditions such as authenticity or responsiveness (e.g., Christman, 1991; Dworkin, 1988; Fischer & Ravizza, 1998).

Autonomy as Authenticity

One prominent strand of contemporary philosophical accounts of autonomy proposes a condition of authenticity—roughly that the desires, preferences, and values that one acts upon are, in some sense, one's own (Christman, 1991). This condition has been the subject of considerable debate. A prominent account maintains that autonomy entails a second-order endorsement of or identification with the first-order desires that prompt one's actions (Dworkin, 1988, pp. 15–17; Frankfurt, 1971).[4] However, such identification might result from manipulation or compulsion, challenging the idea that the agent is autonomous. To address this issue, alternative accounts of authenticity have sought to base the determination of autonomy on the processes that shape the agent's desires and commitments, incorporating the diachronic aspects of selfhood development. For instance, it has been proposed that autonomy presupposes the capacity for (minimally) rational self-reflection on one's desires, including the ability to foster or resist their development (Christman, 1991).

At least implicitly, autonomy as authenticity appears to underpin the threats that Couldry and Mejias (2019) and Zuboff (2019) associate with algorithmic technologies and their influence on human autonomy through the manipulation of motivations and decision-making processes. Nudging (e.g., Yeung, 2016) raises similar questions about authenticity, even if manipulation happens via choice architectures in a less rigid and enforced manner. This approach explicitly motivates Susser, Roessler, and Nissenbaum

[3] The distinction between negative and positive *liberty* was introduced by Isaiah Berlin (1969); however, Berlin's notion of positive liberty as control or self-mastery is closer to a narrower notion of autonomy than the positive freedom *to* choose.

[4] Frankfurt's (1971) account was originally a proposal for the conditions of free will; however, it has been deployed as an account of autonomy and was adapted by Dworkin.

(2019) argument that "online manipulation" undermines autonomy: Algorithmic technologies facilitate the exploitation of individual vulnerabilities through surveillance and covert influencing of decision-making environments (or "choice architectures"), and this "manipulation" leads to individuals acting for ends they have not chosen or for reasons they have not recognized as their own.

A key challenge with this approach is that the self-reflective processes of endorsement and identification are influenced by various intersubjective factors. As feminist critics have noted, traditional ideals of autonomy are excessively individualistic, overlooking how social and relational commitments shape self-conceptions (Mackenzie, 2008). Consequently, it is challenging to distinguish between influences that erode autonomy and those that do not. This problem also arises in the context of online manipulation. Although Susser et al. (2019) recognize the social dimensions of selfhood and agency, their account appears to suggest that any influence on reflective processes and decision making can be construed as "manipulative" and (hence) as undermining autonomy (see Klenk & Hancock, 2019).

Autonomy as Responsiveness to Reasons

Another prominent strand in the contemporary philosophical debate identifies autonomy as the ability to respond to reasons for action, rather than internal and reflective endorsement. According to these reasons-responsive conceptualizations, an agent is autonomous to the extent that their considerations, desires, emotions, and so on are responsive to an adequately diverse range of reasons (see Fischer & Ravizza, 1998, pp. 41–46). The primary insight propelling this approach is that one cannot be considered autonomous if one cannot comprehend one's true reasons for action, or if one remains impervious to those reasons.

While this approach to autonomy has not explicitly surfaced in debates concerning algorithmic technologies and media, it appears to underlie recent discussions about the potential of personalization in journalism. For instance, it has been proposed that personalization could aid journalism as a public service by prompting users to explore diverse and serendipitous content (Møller, 2022). Indeed, journalists and theorists have maintained that journalism ought to provide information that aids audiences in making life choices and participating as citizens in democratic societies (e.g., Kovach & Rosenstiel, 2001; Sjøvaag, 2018). This function can be viewed as enhancing the audience's autonomy as responsiveness by offering information that provides reasons for action and helps them become more responsive to those reasons. The challenge with this approach is that to determine whether an agent is autonomous, we must examine whether the agent acts based on what truly are reasons—an assessment that can only be made from the perspective of substantial considerations and value commitments. This concern intersects with the role of journalistic media as arbiters of what the audience should "know," which has ignited a long-standing debate on the extent and justification of paternalism in journalism (Appelgren, 2017; see Thomas, 2016).

Using the distinction between these approaches to autonomy as our analytical framework, our empirical study examines the potential impacts of algorithmic technologies on audience autonomy. To investigate their possible consequences for the audience, we concentrate on a context where algorithmic technologies are currently being implemented. The questions guiding our research are as follows:

RQ1: How is personalization regarded as affording choices and new roles for the audience in relation to content?

RQ2: How is algorithmic personalization perceived as reflecting the interests and values of the audience and its individual members?

RQ3: How is personalization perceived to influence the audience's capacity to respond to reasons for action?

Data and Methodology

The empirical context of our research is Finnish legacy media, where the introduction of algorithmic and AI technologies of news automation and personalization has triggered significant public debate surrounding their ethical and societal implications. In 2019, the Finnish Council for Mass Media issued a statement about the employment of algorithms and automation; this appears to be the first pronouncement on the subject by a media council.[5] To examine the implications of algorithmic personalization technologies on potential new roles for the audience, their interests and values, and the information influencing their choices and reasons for action, we analyze empirical material consisting of 11 interviews with key actors in Finnish legacy media (Table 1).

The data was initially collected for a broader project on journalistic personalization. Our focus on the topic of audience autonomy and its articulations by participants representing the media was motivated by our initial analysis of the data. In our interactions with these actors, audience autonomy emerged as an overarching theme for articulating the effects that personalization is expected to have on the audience. The participants consistently expressed the need to balance autonomy concerns amid the introduction of new technologies to justify their implementation. They employed notions connected to audience autonomy and the importance of preserving or bolstering it as motivations and justifications for implementing personalization technologies. On the other hand, these same notions were deployed to highlight issues, risks, and reasons to restrict such technologies. Therefore, we started to trace the theme across our material, resulting in the analysis presented below. Moreover, as the editors and technologists are key figures in the decision-making processes around technological advancements in their media organizations, their expectations of the effects of personalization technologies play a key role in the trajectories of new technology development. The focus on media actors is further motivated by the fact that the public debate has been conducted by journalists and newsrooms, and the individuals in question have reflected on the implications of these developments for autonomy in some depth.

By investigating media organizations, we identified both technologists and editors engaged in the practical development of personalization technologies. In addition, the participants were chosen to reflect

[5] The statement maintains, first, that the employment of algorithms is a journalistic choice that must be justified based on journalistic principles. Second, the audience has a right to be informed about the utilization of algorithms. In particular, if a substantial amount of content is personalized, this process should be disclosed in an understandable manner.

the spectrum of media, encompassing smaller magazines, regional and national newspapers, and public broadcasts. Eight participants served as editors in chief in media outlets with differing scales and geographical focuses. One participant was the chair of the Council for Mass Media, with previous experience as a journalist and editor. Three participants were technologists responsible for the development of personalization; two of the three had experience in media development beyond legacy media, and one was a managing editor with a journalistic background. The semi-structured interviews took place on Zoom from March to November 2021, lasting from 30 minutes to 100 minutes. Each session was video recorded, and key portions were transcribed. To ensure thoroughness and allow for in-depth follow-up questions, every interview was conducted by at least two researchers.

Table 1. Study Participants in Chronological Order.

Code	Media	Role
P1	Regional newspaper	Editor in chief
P2	Multimedia company with a dozen regional and local media outlets	Technologist
P3	News agency serving media outlets	Editor in chief
P4	Regional newspaper	Editor in chief
P5	Weekly news magazine	Editor in chief
P6	Council for Mass Media in Finland	Chair
P7	National daily newspaper	Managing editor, technologist
P8	Public broadcast	Editor in chief
P9	Public broadcast	Technologist
P10	Three ICT magazines	Editor in chief
P11	Niche monthly magazine	Editor in chief

A central point of departure for this research is that personalization technologies are not fixed entities. Instead, their significance is shaped by socio-discursive practices and actions. This stance aligns with prior studies on computational technologies in journalism, where such technologies have been probed by assessing their discursive manifestations in practice (Bucher, 2017; Rydenfelt, 2022; see Putnam, 2015). We aim to identify how audience autonomy surfaced in the articulations of these technologies. Our analysis builds on the participants' articulations of the role of the audience in personalization, as well as the consequences and implications of personalization technologies, both for the audience and more generally. With our understanding of the three conceptual approaches to autonomy as an analytical lens, we trace articulations of how personalization may influence audience choices and agency; how personalization is connected to the interests, desires, and values of the audience and its individual members; and how personalization affects the audience's responsiveness to reasons and the function of journalism in providing pertinent information. In our thematic analysis, articulations are labeled and merged into patterns, noting potential overlaps and focusing on how personalization practices are attributed contrasting and conflicting implications. This iterative process leads to the five thematic categories we present below.

Analysis

All study participants were willing and able to articulate their perspectives on personalization and associated phenomena within their media. We detected a substantial variation among different media regarding attitudes toward the potential of personalization, frequently attributed to disparities in their resources and distinct publication profiles. Nevertheless, many participants possessed an in-depth understanding of current personalization technologies within the broader landscape of both social and journalistic media and were eager to consider the prospects of such technologies in journalism in general. The participants articulated personalization as introducing new ways and possibilities for audiences to influence the content they receive from journalistic media, framing these new possibilities as a justification for introducing new algorithmic technologies. However, this influence was not simply identified with the benefit of (increased) autonomy. Instead, various considerations related to autonomy emerged in relation to choice and control, manipulation and its absence, and reasons for action. The significance of personalization with respect to autonomy depended on a constellation of factors. Juxtaposed with other interests and journalistic values, personalization resulted in a reconsideration of the audience's interests in journalistic productions. The articulations related to autonomy presented a multitude of conflicting possibilities, rather than a tidy accounting of benefits on one side and risks on the other. The following analysis delineates the key points of contention that surfaced during our interactions with the participants, organized into five thematic categories. We began by assessing the most straightforward connection between autonomy and personalization: how the participants characterize the audience's capability to make (informed) choices within content personalization. We then explored articulations of transparency as a facilitator for audiences to understand the context of such choices. The third theme problematized the relationship between audience autonomy and personalization by discussing the potential for manipulation by targeting content. Our fourth focus was on how personalization navigated the delicate balance between importance and catering to audience interests. Last, we considered articulations of the responsibility of journalism to preserve a collective reality in relation to personalization and audience autonomy.

Architectures of Choice

Many considerations pertaining to autonomy were articulated in terms of autonomy as freedom of choice. Personalization was viewed as something the audience may enact "to" themselves through active choices, and personalization predicated on the user's explicit choice was commonly regarded as unproblematic. Furthermore, these choices were articulated as something to be respected and facilitated, as enshrined in the remark of one of the participants: "If a person themselves chooses their content from these feeds, personalizes for themselves, who am I to judge" (P10). Choices over content made by the audience were also perceived as mitigating the responsibility of journalists and newsrooms. As one editor in chief noted, "The reader must understand that these are their choices and not journalistic choices, affecting what's on the front page. [. . .] This is in the interest of both the media and the consumer. I don't see a conflict here" (P4).

While personalization in this way can fit comfortably with understandings of autonomy as freedom of choice, the actuality of these choices poses an intricate question. Many participants proposed a relatively high standard for considering the choices made by the audience as its own, identifying such choices with an

explicit selection of content type. A distinction was made, in the words of one editor in chief, between "two very different kinds of personalization: whether you're making the choice or the machine is making it on your behalf" (P8). In this way, personalization was perceived as both enhancing and undermining the capacity to choose, depending on the extent to which decision making is delegated to algorithms.

A much clearer standard, however, was applied to choices that audiences routinely delegated to journalistic media and journalists. The participants underscored that the relevant choice already occurs during the selection of media or publication and that audiences expect journalists to make more detailed choices concerning content. In this way, while the media provides an architecture of contents to its audience, the key moment of choice, along with the exercise of autonomy, occurs when audiences choose between such "architectures." This autonomy-preserving delegation of choice also applies to algorithmic systems, as long as those systems are developed by journalistic actors. This understanding of choice delegation also contributed to doubts expressed by some participants about the desire and willingness of the audience to make more specific choices, in some cases backed by experience gained from experimentation with providing more alternatives.

Transparent Alternatives

A recurring theme in our conversation was transparency about personalization, which was connected to all three approaches to autonomy that we distinguished. First, providing information about personalization and the factors behind it were viewed as supporting the audience's freedom of choice, especially if accompanied by the option to shift between personalized and non-personalized versions of media. When personalization was based on data gathered from the audience, most participants called for enhanced transparency. This ignited considerable speculation about the extent to which the audience was aware of personalization. A technologist participant noted, "Many will understand that [there is personalization], as social media services are widely used. It is not an unfamiliar topic" (P2). An editor in chief surmised that people "in this Google and Facebook world, have largely learnt that they are providing information and engaged in a semi-conscious exchange" (P5). However, when deliberating the matter on an individual level, an editor in chief inferred that the audience's "perception must be clouded": "If I don't truly know if I'm a reader whose content is personalized, it must be a small number who genuinely know" (P3).

Second, transparency was linked to providing information that helps the audience navigate the use of algorithms and personalization, including in contexts beyond journalism. These articulations align with the approach to autonomy as responsiveness to reasons. As a technologist participant contended, "We may have a role in ensuring that the audience is not at the mercy of algorithms. We may communicate transparently that this content or feature is personalized. Social media is also moving in this direction, increasing transparency" (P2). Many participants characterized transparency practices as being in constant evolution and negotiation. Another technologist participant attributed a role to the audience in the discussions about transparency:

> Our well-intended things may slow down [something] or make it too complicated so this is kind of a constantly ongoing dialogue that we need to have [. . .]. We may have our

> own thoughts about what is transparent and understandable, but we need to discuss with citizens whether what we create is really necessary and strive to be transparent in that manner. (P9)

Third, transparency was linked to ensuring that audiences made choices that were genuinely their own, aligning with the approach to autonomy as authenticity. Reflecting on whether transparency should be maximized, one editor in chief observed:

> The technocrat in me says of course not, because ignorance is a better commodity. The societal moralist in me says that all this information related to consumption must be made available. [. . .] I'm not wholly this black and white, but I believe that sensible people need to continue a public discussion on this, and not only on a level of technocracy. In the long run, it's also better for the business, because it contributes to maintaining societal harmony. (P10)

Shedding light on the workings of algorithms and illuminating the purposes of personalization were viewed as potential means to counter their ability to cater to and introduce interests that are not genuinely those of the audience—including the business interests of the media.

In these ways, transparency was construed as enabling audiences to comprehend the context within which selection between contents was made and to identify those responsible for that selection. Transparency about personalization was expected to facilitate a more nuanced understanding of the roles of journalists, audience members, and the underlying technology; this would provide an understanding of what and whose interests were being served.

Manipulated Interests

A remark by an editor in chief is representative of concerns about the manipulation of audiences by personalization technologies that connect primarily with approaching autonomy as authenticity:

> Algorithms—and I'm thinking about Cambridge Analytica etc.—they seriously influence the human mind. People make choices, but this is without knowing what contents and so on have led to those choices. Journalistic media should strive for maximum transparency instead. (P8)

Another editor in chief, also mentioning Cambridge Analytica, suggested that there are plenty of cases where user data has been used "unethically and wrongly" in personalization (P10). Rather than journalism, concerns about manipulation were largely associated with social media platforms, where the editor in chief continued, "I can perceive a risk that has already been materialized many times" (P10).

Transparency, already discussed above, was listed as a central difference between personalization in journalism and social media. Illuminating the purposes of personalization could prevent the use of these technologies to manipulate the interests of the audience by selectively serving content. Another facet of

journalism that was argued to counter manipulation was the fact that, despite personalization, journalistic content retained much of its uniformity across all audiences. The prospect of extending personalization to the content of news items and stories was rejected in strong terms. As the editor in chief argued, content must be "neutral" in the sense of remaining the same to all readers; otherwise, the "ideological publisher" could "personalize in order to produce [ideological] bubbles" (P10). In this way, journalistic practices and ethics were articulated as a countermeasure to the risks to autonomy, in contrast with issues associated with social media.

Moreover, personalization technologies were frequently depicted as potentially enhancing the relevance of news content to the audience. This is where considerations related to autonomy as authenticity emerged most clearly: personalization might allow the delivery of content relevant to the individual and their interests. "If the right person encounters the right content and finds it more easily and has it served to them better, so that it feels relevant to them, then that is a success" (P3); unlike in the "old world," personalization technologies enable "immersing yourself in what has been noticed to be of interest to you" (P6). In this way, journalists portrayed journalism as providing the audience a means to achieve authenticity—construed as leading a fulfilling life of one's choosing—by distributing information relevant to individual interests.

Balancing Importance and Interest

The participants regularly brought up a central tension between personalization and the fundamental objectives of journalism, reflecting a conflict between the approaches to autonomy as freedom of choice and as responsiveness to reasons. An editor in chief articulated this tension in terms of the contrast between personalized content and the "classic user interface of the newspaper," where journalists and editors select and organize stories based on their relevance and importance (P3). Personalization technologies were portrayed as requiring counterbalancing from journalistic choices and oversight. One recurring rationale for such balancing is that the audience is not always the best judge of importance. The editor in chief, continuing the comparison, noted that the traditional newspaper provides "not only what is known to be relevant but what is not known to be relevant" (P3). As this remark indicates, however, importance was still considered from the perspective of the relevance of the information to the audience. Similarly, another editor in chief argued that the role of journalistic media is to provide information so that readers "succeed in their lives and can live the kind of good life they desire" (P1). In this way, journalistic content was perceived as enabling responsiveness to reasons that were, in turn, keyed to the audience's varying conceptions of the good life.

Moreover, the element of choice was introduced to considerations of importance. Journalists argued that the audience has chosen the media to select content on its behalf, with one editor in chief defining the "excellence" of a journalistic publication in terms of its capacity to "carve out a slice of the world for the readers on their behalf in a way that serves them, rather than merely reacting to what the readers are clicking" (P10). Another editor in chief of the public broadcast noted, "Our journalistic task is to provide new and verified information that helps understand the world—but we do strive to make important things interesting" (P8).

Serving Information in Common

Social media personalization technologies were associated with the potential erosion of an informational common ground, hindering societal debates and democratic decision making. Some of the participants expressed concerns that personalization might similarly limit journalism's ability to serve the public or the common interest. One editor in chief, for example, noted, "The next editor-in-chief could decide that Finland is so polarized that we can't stay in the middle but need to align with one side [. . .]. Social media has been an agent of this kind" (P5). The abovementioned aim to provide uniform content across audiences, at least in matters of significance, was described as a balancing factor. For instance, an editor in chief for the public broadcast depicted the current prospects of personalization in this way: "Societally important information and main news is offered to everyone, while we offer more personalization with matters of taste" (P8). Such articulations that posit journalists as the caretakers of the informational common ground set against the autonomy of individuals in the audience, understood in terms of both freedom of choice and authenticity. Many journalist participants did not shy away from the agenda-setting power of the media. For example, one editor in chief outlined the role of the regional newspaper: "We tell readers what they should read, and we also provide content that they wouldn't have chosen themselves, and through that, we create a community among the people in this area" (P1).

However, even in relation to these considerations, journalistic goals were framed as serving the interests of individual audience members. As one editor in chief noted, "If personalization goes overboard, there is a societal risk of losing a shared reality, and that would be significantly worse for the individual" (P3). Many participants also observed that personalization might help boost engagement with news and journalistic media overall, leading to the audience receiving important information and augmenting the audience's autonomy, viewed as responsiveness to reasons. Another editor in chief even described the content relevant to the informational common ground as the "porridge" that is served on the side of—and "goes down with"—items that the audience finds more interesting (P1).

Discussion

Despite its frequent mention in discussions on algorithmic systems and AI, the concept of autonomy remains vague. Autonomy has been broadly framed in terms of "striking a balance between the decision-making power we retain for ourselves and that which we delegate to artificial agents" (Floridi & Cowls, 2019, p. 6). In contrast, Zuboff (2019) casts autonomy as a fundamental right to self-regulation, threatened by those seeking to manipulate behavior for profit. Our analysis, which traces how three approaches to autonomy shape the relationship between journalistic media and their audience, provides a nuanced view of how these concerns interact.

Autonomy as freedom of choice has been discussed in terms of negative and positive liberty (Helberger et al., 2018). In our analysis, this approach naturally emerged in terms of the audience's ability to choose the content they consumed. The audience's choices were seen as deserving of respect and as mitigating the responsibility of journalists and newsrooms, shifting it to the audience. Our analysis reveals, however, how the moment of relevant choice, and thus the exercise of autonomy, tends to be traced back to media selection, relegating content decisions to newsrooms—and even their algorithms. In our analysis,

issues of transparency complicate the question of the extent to which the audience has "chosen" the personalized content served.

Autonomy as authenticity builds on the notion that an autonomous individual's desires, preferences, and values are their own. Autonomy, understood in this way, is viewed as threatened by online manipulation (Susser et al., 2019). Such concerns may underlie recent findings documenting adverse audience reactions to personalization technologies (Suau, Masip, & Ruiz, 2019). In our analysis, forms of personalization in social media were associated with the potential manipulation of the audience's interests. Yet in the context of journalism, personalization was seen as helping to provide the audience with content relevant to their individual interests. Existing journalistic practices were argued to function as guardrails against encroachment on autonomy as authenticity. The permanency and uniformity of journalistic products were seen as safeguards against undue influence on audience interests.

Autonomy as responsiveness is based on the idea that autonomous individuals can make decisions concerning actions based on (what truly are) reasons for action. It has been proposed that personalization could aid in delivering diverse and serendipitous content (Møller, 2022). In our analysis, personalization was similarly perceived to increase the possibility of providing the audience with important content by increasing media consumption overall. However, considerations aligning with this approach to autonomy also place journalism at odds with personalization based on individual choices and interests, suggesting a counteractive relationship between personalization and journalistic decisions. Furthermore, when journalists positioned themselves as caretakers of the informational common ground, they demonstrated the least interest in the individual choices of the audience, underscoring the importance of journalistic agenda-setting.

While these different approaches to autonomy are not necessarily contradictory, our analysis highlights how they can nevertheless be at odds with one another: personalization might augment autonomy by one approach while undermining it in another sense. The audience's potential influence over content provided by personalization, for example, may bolster autonomy as free choice, but could clash with providing important content to the audience, endangering autonomy as responsiveness. Moreover, personalization technologies were articulated by our participants as both enhancing and curtailing autonomy, even under the same approach. For example, while the potential for authenticity-endangering manipulation was acknowledged, personalization was articulated as enabling media producers to cater more adeptly to individual interests and motives.

Journalistic values and norms were seen as guarding against excessive encroachments on individual autonomy in practice. In particular, transparency about personalization and choices made over content was connected with all three approaches to autonomy: transparency would enable free choices, reduce the risk of manipulation, and provide information that stands as reasons for decisions and actions. According to the participants, the audience exercises autonomy by delegating content choices to journalists and the technologies developed by the media. Journalistic practices were typically considered as autonomy-preserving for the audience. While machinic processes were seen as more questionable, their development could be guided by journalistic values, in which case their impact on the audience was not considered detrimental. Much like proposed ethical principles for AI (e.g., Munn, 2023), abstract values were viewed as a guiding force for technology development, even if it was not clear how these values would materialize

as specific choices made in technological development. It is worth noting, however, that journalists did not articulate algorithmic technologies as something they are simply forced to adapt to or an inevitable "necessary evil" (see Haapoja, Savolainen, Reinikainen, & Lehtiniemi, 2024), but rather as elements that can be integrated into journalistic practices by leveraging their editorial control.

These results further reveal how introducing personalization technologies, combined with concerns over audience autonomy, creates a complex balancing act, further complicated by a third factor: journalistic agency, autonomy, and control. Personalization technologies may operate "autonomously," diminishing editorial decision making and reducing journalists' (direct) control over content (Rydenfelt et al., 2024). This loss of editorial control could decrease the relevance of content to the audience and, consequently, in the eyes of media professionals at least, undermine audience autonomy as responsiveness. Conversely, while reducing editorial control, personalization technologies may offer new opportunities for audience influence, augmenting autonomy as a choice. Finally, journalistic values and practices are considered to serve as safeguards against undue influence and manipulation; conversely, the erosion of journalistic control over personalization technologies could compromise audience autonomy as authenticity.

These findings are relevant for considering someone as autonomous in an environment where the actions and choices of algorithmic systems increasingly adjoin human ones. As we have underscored, approaches to autonomy offer varying perspectives on determining what or who qualifies as autonomous. However, the concept of autonomy also assumes various normative roles in social practices—including societal, political, and legal contexts—with respect to the practical consequences that ensue when an individual, or a situated act, is deemed autonomous. Autonomy has traditionally been viewed as the source of moral status, a value, and a central dimension of human flourishing or well-being (see Christman, 1991). Autonomy has also been seen as setting boundaries on paternalism and protecting individual choices and preferences (see Dworkin, 1988, pp. 121–129). Based on our analysis, the three approaches to autonomy are associated with specifications of such normative roles:

Autonomy delimits the ethical responsibility of others: When an individual is autonomous or has made an autonomous choice, others are not held responsible for the individual's actions or their consequences. This was evident in how audience choices were seen as shifting responsibility from journalists to the audience, especially when those choices were seen as free and explicit.

Autonomy must be respected, as it marks a limit to others' interference in an individual's actions, choices, and preferences. Journalists, the media, and nonhuman actors such as algorithms should not unduly infringe on individual preferences and choices. Journalism was articulated as maintaining respect for the audience's interests and attempting to avoid manipulating the audience. Moreover, the choices made by individuals were deemed worthy of respect as such.

Autonomy is to be augmented and enabled: socio-technical structures and those governing them are to enable individuals to be autonomous. Journalism was seen as providing the audience with information that empowered them to respond to reasons for action. This role extends to providing information about the operations and implications of algorithmic systems and the choices they make on behalf of human beings.

These normative roles are directly linked to specific approaches to autonomy—delimitation of responsibility to freedom of choice, respect to authenticity, and augmentation of responsiveness to reasons. However, our analysis also suggests that these links could be uncoupled and that multiple approaches should be explored in relation to each role. This perspective could address the key concerns raised in the study of technology about the relationship between human autonomy and technology more broadly. For example, a critique of autonomy has emerged in relation to "technological liberalism"—the view that technologies can expand individual choice without distortion and support the pursuit of a good life (Dotson, 2012). Such concerns about distortion and the pursuit of a good life can be addressed in our framework through the approaches to autonomy as authenticity and responsiveness. Considering all three approaches implies that an ostensibly free choice does not necessarily shift responsibility to the individual unless that choice is authentic and based on true reasons for action.

Conclusion

Algorithmic technologies have been regarded as potential threats to human autonomy. Conversely, autonomy is—under various descriptions—frequently cited in the principles guiding the responsible development of AI. Our theoretical discussion highlights that concerns about human autonomy can in fact stem from diverse perspectives; moreover, often with little explication, they are motivated by different (though not necessarily incompatible) approaches to autonomy. Our empirical findings reveal that the same algorithmic technologies can have varied—and sometimes conflicting—implications on autonomy, even under a single conceptualization. Thus, autonomy should not be considered as something that is simply threatened or augmented by technology. The effects of algorithmic technologies on human autonomy depend not just on different interpretations of technology's effects, but also on what autonomy is understood to "be." A broad significance of our work lies in the conceptual distinctions that help track the different normative roles of autonomy in social and societal practices, providing a nuanced understanding of the threats and opportunities presented by different algorithmic and AI technologies in journalism and beyond.

References

AlgorithmWatch. (2020, April). *AI ethics guidelines global inventory*. Retrieved from https://algorithmwatch.org/en/ai-ethics-guidelines-global-inventory/

Anderson, C. W. (2011). Deliberative, agonistic, and algorithmic audiences: Journalism's vision of its public in an age of audience transparency. *International Journal of Communication, 5*, 529–547.

Appelgren, E. (2017). The reasons behind tracing audience behavior: A matter of paternalism and transparency. *International Journal of Communication, 11*, 2178–2197.

Berlin, I. (1969). Two concepts of liberty. In *Four essays on liberty* (pp. 118–172). Oxford, UK: Oxford University Press.

Bodó, B. (2019). Selling news to audiences—A qualitative inquiry into the emerging logics of algorithmic news personalization in European quality news media. *Digital Journalism, 7*(8), 1054–1075. doi:10.1080/21670811.2019.1624185

Bucher, T. (2017). "Machines don't have instincts": Articulating the computational in journalism. *New Media & Society, 19*(6), 918–933. doi:10.1177/1461444815624182

Christman, J. (1991). Autonomy and personal history. *Canadian Journal of Philosophy, 21*(1), 1–24. doi:10.1080/00455091.1991.10717234

Costera Meijer, I. (2020). Understanding the audience turn in journalism: From quality discourse to innovation discourse as anchoring practices 1995–2020. *Journalism Studies, 21*(16), 2326–2342. doi:10.1080/1461670X.2020.1847681

Couldry, N., & Mejias, U. A. (2019). Data colonialism: Rethinking big data's relation to the contemporary subject. *Television & New Media, 20*(4), 336–349. doi:10.1177/1527476418796632

Dodds, T., de Vreese, C., Helberger, N., Resendez, V., & Seipp, T. (2023). Popularity-driven metrics: Audience analytics and shifting opinion power to digital platforms. *Journalism Studies, 24*(3), 403–421. doi:10.1080/1461670X.2023.2167104

Dotson, T. (2012). Technology, choice and the good life: Questioning technological liberalism. *Technology in Society, 34*(4), 326–336. doi:10.1016/j.techsoc.2012.10.004

Dworkin, G. (1988). *The theory and practice of autonomy*. Cambridge, UK: Cambridge University Press.

Feinberg, J. (1989). Autonomy. In J. Christman (Ed.), *The inner citadel: Essays on individual autonomy* (pp. 27–53). Oxford, UK: Oxford University Press.

Fischer, J. M., & Ravizza, M. (1998). *Responsibility and control: A theory of moral responsibility*. Cambridge, UK: Cambridge University Press.

Fjeld, J., Achten, N., Hilligoss, H., Nagy, A., & Srikumar, M. (2020). *Principled artificial intelligence: Mapping consensus in ethical and rights-based approaches to principles for AI* (Berkman Klein Center Research Publication No. 2020-1).

Floridi, L., & Cowls, J. (2019). A unified framework of five principles for AI in society. *Harvard Data Science Review, 1*(1). doi:10.1162/99608f92.8cd550d1

Floridi, L., Cowls, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., . . . Vayena, E. (2018). AI4People-An ethical framework for a good AI society: Opportunities, risks, principles, and recommendations. *Minds and Machines, 28*(4), 689–707. doi:10.1007/s11023-018-9482-5

Frankfurt, H. G. (1971). Freedom of the will and the concept of a person. *Journal of Philosophy, 68*(1), 5–20.

Fürst, S. (2020). In the service of good journalism and audience interests? How audience metrics affect news quality. *Media and Communication, 8*(3), 270–280. doi:10.17645/mac.v8i3.3228

Haapoja, J., Savolainen, L., Reinikainen, H., & Lehtiniemi, T. (2024). Moral orders of pleasing the algorithm. *New Media & Society*. doi:10.1177/14614448241278674

Hansen, A. S., & Hartley, J. M. (2023). Designing what's news: An ethnography of a personalization algorithm and the data-driven (re)assembling of the news. *Digital Journalism, 11*(6), 924–942. doi:10.1080/21670811.2021.1988861

Helberger, N. (2016). Policy implications from algorithmic profiling and the changing relationship between newsreaders and the media. *Javnost—The Public, 23*(2), 188–203. doi:10.1080/13183222.2016.1162989

Helberger, N. (2019). On the democratic role of news recommenders. *Digital Journalism, 7*(8), 993–1012. doi:10.1080/21670811.2019.1623700

Helberger, N., Karppinen, K., & D'Acunto, L. (2018). Exposure diversity as a design principle for recommender systems. *Information, Communication and Society, 21*(2), 191–207. doi:10.1080/1369118X.2016.1271900

Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence, 1*(9), 389–399. doi:10.1038/s42256-019-0088-2

Just, N., & Latzer, M. (2017). Governance by algorithms: Reality construction by algorithmic selection on the Internet. *Media, Culture and Society, 39*(2), 238–258. doi:10.1177/0163443716643157

Kim, B., & Jin, B. (2023). Ideological and economic influences on journalistic autonomy and cynicism: A moderating role of digital adaptation of news organizations. *Journalism, 24*(9), 2076–2094. doi:10.1177/14648849221095334

Klenk, M., & Hancock, J. (2019). Autonomy and online manipulation. *Internet Policy Review*.

Kovach, B., & Rosenstiel, T. (2001). *The elements of journalism: What newspeople should know and the public should expect*. New York, NY: Crown Publishers.

Kunert, J., & Thurman, N. (2019). The form of content personalization at mainstream, transatlantic news outlets: 2010–2016. *Journalism Practice, 13*(7), 759–780. doi:10.1080/17512786.2019.1567271

Mackenzie, C. (2008). Relational autonomy, normative authority and perfectionism. *Journal of Social Philosophy, 39*(4), 512–533. doi:10.1111/j.1467-9833.2008.00440.x

Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The ethics of algorithms: Mapping the debate. *Big Data and Society, 3*(2), 1–21. doi:10.1177/2053951716679679

Møller, L. A. (2022). Recommended for you: How newspapers normalise algorithmic news recommendation to fit their gatekeeping role. *Journalism Studies, 23*(7), 800–817. doi:10.1080/1461670X.2022.2034522

Monzer, C., Moeller, J., Helberger, N., & Eskens, S. (2020). User perspectives on the news personalization process: Agency, trust and utility as building blocks. *Digital Journalism, 8*(9), 1142–1162. doi:10.1080/21670811.2020.1773291

Munn, L. (2023). The uselessness of AI ethics. *AI and Ethics, 3*(3), 869–877. doi:10.1007/s43681-022-00209-w

Napoli, P. M. (2012). Audience evolution and the future of audience research. *International Journal on Media Management, 14*(2), 79–97. doi:10.1080/14241277.2012.675753

Peterson-Salahuddin, C., & Diakopoulos, N. (2020). Negotiated autonomy: The role of social media algorithms in editorial decision making. *Media and Communication, 8*(3), 27–38. doi:10.17645/mac.v8i3.3001

Putnam, L. L. (2015). Unpacking the dialectic: Alternative views on the discourse–materiality relationship. *Journal of Management Studies, 52*(5), 706–716. doi:10.1111/joms.12115

Resnick, P., & Varian, H. R. (1997). Recommender systems*. Communications of the ACM, 40*(3), 56–58. doi:10.1145/245108.245121

Rydenfelt, H. (2022). Transforming media agency? Approaches to automation in Finnish legacy media. *New Media & Society, 24*(12), 2598–2613. doi:10.1177/1461444821998705

Rydenfelt, H., Haapanen, L., Haapoja, J., & Lehtiniemi, T. (2024). Personalisation in journalism: Ethical insights and blindspots in Finnish legacy media. *Journalism, 25*(2), 313–333. doi:10.1177/14648849221138424

Savolainen, L., & Ruckenstein, M. (2024). Dimensions of autonomy in human–algorithm relations. *New Media & Society, 26*(6), 3472–3490. doi:10.1177/14614448221100802

Simon, F. M. (2022). Uneasy bedfellows: AI in the news, platform companies and the issue of journalistic autonomy. *Digital Journalism, 10*(10), 1832–1854. doi:10.1080/21670811.2022.2063150

Sjøvaag, H. (2018). Journalism's social contract. In *Oxford research encyclopedia of communication*. Oxford, UK: Oxford University Press.

Suau, J., Masip, P., & Ruiz, C. (2019). Missing the big wave: Citizens' discourses against the participatory formats adopted by news media. *Journalism Practice, 13*(10), 1316–1332. doi:10.1080/17512786.2019.1591928

Susser, D., Roessler, B., & Nissenbaum, H. (2019). Technology, autonomy, and manipulation. *Internet Policy Review, 8*(2). doi:10.14763/2019.2.1410

Thaler, R. H., Sunstein, C. R., & Balz, J. P. (2013). Choice architecture. In E. Shafir (Ed.), *The behavioral foundations of public policy* (pp. 428–439). Princeton, NJ: Princeton University Press.

Thomas, R. J. (2016). In defense of journalistic paternalism. *Journal of Media Ethics, 31*(2), 86–99. doi:10.1080/23736992.2016.1152895

Thurman, N., Moeller, J., Helberger, N., & Trilling, D. (2019). My friends, editors, algorithms, and I. *Digital Journalism, 7*(4), 447–469. doi:10.1080/21670811.2018.1493936

Thurman, N., & Schifferes, S. (2012). The future of personalization at news websites: Lessons from a longitudinal study. *Journalism Studies, 13*(5–6), 775–790. doi:10.1080/1461670X.2012.664341

Wandels, N., Mast, J., & Van den Bulck, H. (2023). The changing face of journalistic autonomy: A case study of De Standaard (1976–2020). *Journalism Studies, 24*(11), 1418–1439. doi:10.1080/1461670X.2023.2216809

Wendelin, M., Engelmann, I., & Neubarth, J. (2017). User rankings and journalistic news selection: Comparing news values and topics. *Journalism Studies, 18*(2), 135–153. doi:10.1080/1461670X.2015.1040892

Wu, C., Wu, F., Qi, T., Zhang, W.-Q., Xie, X., & Huang, Y. (2022). Removing AI's sentiment manipulation of personalized news delivery. *Humanities and Social Sciences Communications, 9*, 459. doi:10.1057/s41599-022-01473-1

Yeung, K. (2016). "Hypernudge": Big Data as a mode of regulation by design. *Information, Communication & Society, 20*(1), 118–136. doi:10.1080/1369118X.2016.1186713

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. New York, NY: PublicAffairs.