Exploring Autistic Coping through Participatory Design

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Autistic adults find themselves embedded within digital environments that are largely designed by and for neurotypical people. These environments are often unsuitable and challenging for the neurodivergent. As a result, autistic people are exposed to high levels of stress when using digital technologies, and must invest extraordinary effort in coping with it. In this participatory design study, we partnered with 20 autistic adults to investigate how they handle the stress caused by social media use. Their ways of coping and their design work point at the most problematic aspects of the design of social media, and suggest alternative directions for these digital platforms. We conclude that participatory design grounded on autistic coping provides an opportunity for the neuro-diversification of technology design.

CCS Concepts: • **Human-centered computing** → **Empirical studies in collaborative and social computing**.

Additional Key Words and Phrases: coping strategies, ways of coping, autistic adults, social media, participatory design

1 Introduction

Autism spectrum disorder (ASD) is a lifelong neurodevelopmental condition that affects about 1% of the world population [67]. It is medically characterised by difficulties in social communication and interaction, restricted or repetitive patterns of behaviour or interests [32], and sensory particularities [3, 16, 41]. We include this definition of autism for completeness and reference purposes, however we do not subscribe to a medicalised understanding of ASD. Our work is instead inspired by and aligned with the neurodiversity paradigm [65], which understands autism as difference. According to the neurodiversity perspective, autism is a reflection of human neurological diversity [56] and represents a different cognitive style [15].

In this paper, we report on participatory design activities conducted with 20 autistic collaborators about their social media experiences. Our collaborative design inquiry led us into an exploration of autistic coping in the context of social media use. Coping is the process by which we adapt to our

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environment in order to keep well [53], and comprises the actions we use to deal with stressful situations [57]. Autistic adults find themselves embedded within environments, both physical and digital, that are largely designed by and for neurotypical people. These environments are often challenging and unsuitable for the neurodivergent. As a result, autistic people are exposed to high levels of stress in their daily lives [46, 47], and must invest extraordinary effort in their coping processes. In spite of this, research on how autistic people cope with stress is still limited and has mostly focused on children [47].

Our work contributes to the understanding of autistic coping in digital environments. It is positioned at the intersection of autism in adulthood and social media. Coping has been studied for both separately, but not together, with the only study at the intersection of coping, social media and autism involving adolescents and focusing exclusively on the coping strategy known as camouflaging [29]. Meanwhile, prior studies about how autistic adults engage with social media have mostly identified the stressors that autistic adults experience as a result of social media use, without exploring the attendant coping behaviour. The authors of these studies proceeded by, as expert designers, suggesting *"opportunities for interventions"* [11] and inclusive design recommendations [49]. In committing to a participatory design approach, our research took a different path. Our participatory methods helped us uncover how autistic adults are coping with their own stressors when using social media, and how they envision (re)designed digital environments assisting them in doing so in the future. Our participants' design work speaks to what design aspects of social media are most urgent to address, and suggests alternative design directions.

This work thus tackles two research questions and makes two contributions to knowledge. Our research questions are:

(1) How do autistic adults cope with the stressors derived from social media use?
(2) How do autistic adults envision design supporting their coping processes in the context of social media?

Through inquiring into these questions, this paper contributes an expanded understanding of autistic coping in digital contexts, and provides an example of how identification and classification of coping behaviour can assist design work. Specifically, our paper highlights problematic areas in the design of social media platforms, such as the absence of tools for collaborative meaning-making and self-management in use, as well as the lack of user control over algorithmic content feeds and the sensory aspects of the social media experience.

2 Related work

2.1 Theories and classifications of coping

Scholars have identified two theoretical positions in the study of coping, which have been termed the "personality framework" and "coping as a process" [7]. In earlier research, coping was understood as primarily determined by personality attributes and individual traits, i.e. as a *"psychological construct"* [38, p. 10]. Gradually a recognition developed of the central role played by the environment, which has resulted in an understanding of coping as a process and a product of a specific contextual situation [38]. As a process and a product of environmental factors, coping has been defined as encompassing *"the myriad actions individuals use to deal with stressful experiences"* [57, p. 217], or more broadly as the process by which we *"adapt to the environment and maintain well-being"* [53, p. 1].

Coping behaviour has proven extremely difficult to classify [57]. Common classification categories such as problem-focused vs. emotion-focused coping, or approach vs. avoidance coping [57], have been criticised for reducing complex human behaviour to opposing binaries, and for being unable to accommodate complementary or supportive interactions between different coping behaviours

[47, 57]. A thorough attempt to develop a taxonomy of coping is provided in [57], which suggests a hierarchical structure of four levels, listed here from the bottom-up: 1) coping instances; 2) ways of coping or coping strategies; 3) families of coping; and 4) adaptive processes. Coping instances are the actual, real-time, individual responses to specific stressful situations. Ways of coping or coping strategies are lower order categories that group coping instances, which in turn are classified into 12 higher order categories named "families of coping". Following this hierarchical taxonomy of coping, our study deployed an inductive, bottom-up approach [57] to group autistic instances of coping into lower order ways of coping in the context of social media stressors. As per existing literature conventions, in this paper we use both "ways of coping" and "coping strategies" to refer to our lower order coping categories.

2.2 Coping and autism in adulthood

Autistic adults' coping practices have been studied in general, by examining commonly used strategies across a variety of situations (dispositional studies); or as deployed to handle specific situations and stressors (situational studies) [47]. Dispositional research has studied the associations between coping strategies and mental health outcomes, comparing results across autistic and non-autistic samples [47]. Findings suggest more frequent use of disengagement coping (i.e. directed away from the stressor) in autistic participants, and that engagement coping (i.e. directed towards the stressor) was associated with better well-being [47].

Between the situational studies, coping strategies have been explored in the context of sensory stimuli and social stigma. Up to 94% of autistic adults experience sensory differences [41], which include hyperreactivity (more intense reactions), hyporeactivity (no or delayed reaction) and sensory seeking (engaging with sensory input repeatedly) [41]. Autistic adults cope with their sensory differences through avoidance (i.e. escaping the overwhelming stimuli); through the use of tools for environmental control (e.g. sunglasses, earplugs); through physical reactions (e.g. covering one's eyes or ears); by seeking soothing sensory input (e.g. music, soft materials); by leveraging single-channel processing, i.e. the ability to stop processing information from certain senses by becoming highly focused on others; and through engaging with other people, either by making sense of personal sensory experiences through comparison with those of others, or by seeking direct support from trusted people [30, 41, 52].

In relation to coping with social stigma, particular attention has been paid to camouflaging [14]. Autistic camouflaging has been defined as the conscious or unconscious employment of certain behavioural and cognitive strategies to better cope with the normative, non-autistic social world [14, 35]. Camouflaging-related coping behaviours include learning social skills through watching others and / or from media (TV, films, books, etc); researching the rules of social interactions; using scripts in social situations; copying others' body language and facial expressions; monitoring and adjusting one's body and face to appear relaxed and / or interested in others; performing a non-autistic persona; avoiding interacting with others; and seeking support to socialise [27]. A recent literature review concludes that autistic camouflaging may constitute a response to experiences of stigma, and that it is associated with higher self-reported autistic traits and mental health difficulties [14].

When it comes to autistic coping in the context of technology use, existing literature appears more focused on identifying stressors than ways of coping (e.g. [11, 49]). Exceptions are [68], [69] and [29]. [68] work on video calling use amongst autistic people found that coping strategies were deployed before, after and during calls. These strategies included: controlling sensory experiences to improve focus (e.g. sourcing comfortable sitting, adjusting audio settings); strategies to retain relevant information (e.g. writing notes); and developing a clear mental model of conversation partner's affect and cognitive style. When lacking appropriate strategies, autistic participants reported

becoming more stressed, less able to interpret social-emotional cues, and less effective in their role for the meeting. Later research on autism-related conversations on Twitter describes behaviours that may be interpreted as coping strategies, such as abandoning Twitter altogether, using the blocking feature, taking advantage of structured communication options such as polls and 'likes', posting supportive and positive responses, and explicitly stating meaning and intent (e.g. when being sarcastic) [69]. [29] examined and compared the camouflaging practices of autistic adolescents offline and on social media. The authors concluded that autistic adolescents camouflage less on social media than in offline contexts, perhaps because social media interactions are experienced as more straightforward and comfortable than offline ones. This work connects the scholarship on autistic coping with a broader HCI and CSCW body of research about coping in the context of social media.

2.3 Coping and social media

Coping-related literature on social media does not take a dispositional approach, in the sense that there is no overarching collection of coping strategies commonly used on social media across a variety of stressors. Instead, studies adopt a narrow situational scope. Some have focused on how certain technical features such as lists [17] or friends-only profiles [61] are incorporated into ways of coping. Other studies have investigated a single coping strategy, such as creating multiple profiles within a single social media site (e.g. [60]); audience management (e.g. [19]); withdrawal and discontinued use (e.g. [5, 42]); or distraction [62]. Prior research has also explored coping strategies for specific stressors, such as the presence of multiple audiences within a single digital space or "context collapse" (e.g. [37, 43]), information overload (e.g. [33]), or maintaining privacy (e.g. [12, 13, 36, 66]).

Several of these studies attempt to classify ways of coping. A basic distinction is between technology-supported coping strategies, such as configuration of privacy settings or untagging photos; and behaviours beyond the bounds of interface features, such as providing false information or creating multiple profiles [13, 61, 66]. [13] suggests three broad categories of social media coping: 1) problem-focused strategies, such as active coping, information control, and privacy settings use; 2) emotion-focused strategies, for instance acceptance, avoidance and disengagement; and 3) communication strategies, such as negative word-of-mouth, instrumental support / information seeking, complaining and venting. Research on dealing with information overload classifies coping strategies into passive (requiring little effort), active (requiring user involvement) and advanced (based on exercising control) [33]. Passive strategies included cognitive heuristics (i.e. applying simple criteria to identify relevant information), omission, and failed action; active strategies included hiding, deleting, and account deactivation; and advanced strategies exerted control over the composition of one's network or one's behaviour. An additional classification attempt is provided by [36], who organised privacy-related coping strategies along three dimensions: behavioural vs. mental, preventive vs. corrective, and individual vs. collaborative. All three axes are applied to a single coping strategy. For instance, segmenting one's audience within or across social media platforms can be classified as a behavioural, preventive, and individual strategy, since it involves taking action (behavioural) individually in order to avoid potential undesirable outcomes (preventive). Meanwhile, asking someone else to remove an unwanted photograph of oneself would be behavioural, but also corrective (seeking to minimise the negative effects of an event that has already taken place) and collaborative (involving negotiation with others) [36]. An example of a mental coping strategy would be adopting a responsible mindset towards the privacy of others, and trusting those others to correspond [36].

Our work differs from the above literature on social media-related coping strategies in two ways: rather than focusing on specific coping strategies, we address overall coping behaviour on social

media; and instead of relying on surveys [12, 13, 61], interviews [33, 36, 66], or focus groups [12, 36], we explore coping strategies through participatory design methods and design work undertaken by autistic adults themselves.

2.4 Participatory design with autistic adults

Existing participatory design work with autistic people has mostly involved children, adolescents and students [21, 44, 51]. There are substantially fewer examples of participatory design work with autistic adults. For instance, a recent literature review on the subject identified only 7 relevant papers [44].

In addition, much of this work has focused on developing assistive technologies that address the difficulties, challenges and deficits typically associated with ASD [58]. These have included gamified mobile applications to boost physical activity [31]; assistive robots [2]; technologies for emotional expression [23]; identification of sensory-appropriate locations [51]; and anxiety management tools [55]. Outside assistive technologies, the ASCmeI.T. project deployed a mobile application to collect ideas from the autistic community about what technologies they would like to see developed [22, 50].

As can be observed from the examples above, participatory design with autistic adults has been mostly concerned with the production of new technologies. There is a remarkable gap in assessing the suitability of existing, mainstream digital tools for this population. This applies to systems and platforms that have become essential for everyday life, such as financial technologies, government services, and social media. Regarding the latter, the first participatory design project with autistic adults was reported on in 2023 [4]. Our paper builds upon recent CSCW and HCI scholarship on autistic people and social media (e.g. [49, 63]), and progresses incipient participatory work on how the design of existing social media platforms interacts with autistic sensitivities and preferences.

3 Methods

In collaboration with Autistica, a UK autism charity, we recruited 20 adults with an autism diagnosis, no history of intellectual difficulties, and experience using different social media platforms such as Facebook, Twitter[1], Instagram, LinkedIn, Discord and reddit. Although participants' life circumstances varied, none of them reported complex needs. Ages ranged between 20 and 60 years old. 9 participants identified as female, 4 identified as male, and 6 identified as non-binary or agender, with 1 participant choosing not to disclose their gender. The study received ethical approval from the lead authors' institution. Informed consent was obtained from all participants, who were compensated at the public involvement rate recommended by the NIHR Centre for Engagement and Dissemination [20].

Following Milton's recommendations [45], our research team included an autistic scholar, and we partnered with autistic collaborators through participatory design methods. Our autistic colleague was a standard member of the research team, and was core to all aspects of the research work, including liaising with participants, identifying required accommodations, facilitating participatory activities, data analysis and writing of results. Her contribution was particularly valuable in the preparation of the design activities and materials.

We organised 4 participatory design workshops broken down into 3 sessions. The 20 participants were split into 4 groups of 5 people which, as far as possible, remained unchanged across all 3 sessions. Overall, we ran a total of 12 2-hour sessions with participants (3 sessions per group). Due to cancellations and schedule changes, each session had between 3 and 6 attendees plus

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[1]Since our research took place, Twitter has been renamed and is called "X". In this paper, we still use "Twitter" to refer to the social media platform to better reflect the wording and experiences of our participants.

3 facilitators, including the autistic scholar. Sessions took place remotely, since this was our participants' preferred mode of interaction. Autistic people can experience anxiety and sensory discomfort in social situations and unfamiliar physical environments [51]. Doing research remotely allowed them to engage in the activities from the safety and comfort of a familiar location. To facilitate the process, we used a video conference platform (Zoom) in combination with a web-based digital whiteboard (Miro). Participants were invited to express themselves by talking or writing via the chat, whichever felt most comfortable. They were also free to switch on / off their webcams at will.

The researchers developed custom materials for each of the sessions with both a digital and a physical instantiation. The digital version of the materials was displayed on the digital whiteboard. The physical version of the materials was printed on cardboard and posted to participants ahead of each session. Participants were invited to use whichever version of the materials (physical or digital) worked best for them. They were also encouraged to display the physical materials within their own space, and to keep them until the end of the third session.

3.1 Participatory design sessions

The workshops followed a process that moved participants from a descriptive mindset (session 1), into a reflective one (session 2), and finally into a making phase (session 3). Session 1 encouraged participants to describe their personal social media experiences through a data immersion activity based on the "evidence safari", a groupwork method for engaging, interrogating and discussing curated research data [18]. The researchers selected a subset of data about autistic adults' social media use from a prior phase of the Autistic Adults Online research project. Starting from the existing analysis of this data, the research team selected and adapted 5 themes, choosing 4 representative examples per theme from the data corpus. These data examples were developed into evidence cards consisting of an image and a brief explanatory statement. Each theme included 4 evidence cards, followed by a questions card with 4 prompts to guide the theme review. To accommodate session time constraints, we assigned 2 of the 5 themes to each group for review, making sure that each theme was reviewed by at least one group.

Session 2 invited participants to reflect on their social media practices. It did so through a set of 6 "questionable concepts", provocative design proposals purposefully assembled to motivate creative critique [64]. The autistic author's contribution was essential in the development of these concepts, where we had to strike a fine balance between humour, ridicule, outrage and inspiration. Each questionable concept consisted of an explanatory card, and an interactive prototype developed with a design tool (Figma). All 6 explanatory cards are available in a public Git repository[2]. Ahead of session 2, participants were asked to choose a personal anecdote about their own social media use; then review the "questionable concepts" and consider whether any of them applied to their anecdote. During the session, each participant narrated their personal anecdote, identified their selected questionable concept and explained the rationale behind their choice. Each participant's contribution was followed by questions and a brief discussion.

Session 3 asked participants to imagine features for a brand-new social media platform, using a design card-based activity [39] to support the creative process. We chose design cards because they have been successfully used in the past for participatory design purposes with autistic adults [2, 21]. The design cards were loosely based on the inspiration cards workshop [24]. They included 3 colour-coded types of cards: action cards (blue), entity cards (orange) and blank cards (white). Action cards represented things users can do on social media (e.g. send or delete). Entity cards represented objects users can manipulate on social media (e.g. posts, friends). There were 17 action

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[2]https://github.com/autisticadultsonline/autisticadultsonline/tree/main/workshop2_questionable_concepts

cards and 17 entity cards. The list of actions and entities was a combination of existing items from social media platforms (e.g. send, search, emojis, hashtags), and items that surfaced during prior sessions (e.g. preview, read aloud, rudeness, different views). We also provided blank cards that allowed participants to add their own actions and entities. The design cards are available in a public Git repository[3]. During the session, participants engaged in 3 rounds of feature-making. Rounds started with 10 minutes of individual work, during which participants envisioned and composed their features using the design cards. After the 10 minutes, each participant explained their feature and answered questions from the group. Each round of feature-making was followed by a short break. Of the 16 participants who attended session 3, all but 2 (P9 and P10) used the design cards as intended by the researchers. P9 and P10 did create features as well, albeit more abstract and less formed than the features developed by the other participants. These differences were substantial enough to consider them outliers, so the researchers decided to exclude them from analysis. Overall, 14 participants designed a total of 38 social media features.

3.2 Data analysis

All 12 sessions were audio recorded and transcribed. The data corpus also included all comments on the digital whiteboards and the chat logs from all sessions. We carried out reflexive thematic analysis [8–10] on this material. The first author engaged in a first round of inductive coding and discussed the outcome with all authors. We generated two initial themes at that early stage: one about stressors participants had to contend with while using social media; and a second one about coping strategies participants deployed to handle those stressors. Using those initial themes as a guide, the first author carried out a second round of inductive coding. During that second round, the first author aimed to identify a more exhaustive and granular list of stressors and coping strategies. The second round of coding also paid particular attention to 1) how existing features in social media platforms interacted with stressors and coping strategies; 2) how challenges and coping strategies connected to each other; and 3) how the participants' features created during session 3 related to those stressors and coping strategies. The outcome of the second round of coding was once more discussed and reviewed by all authors. The process culminated with mapping each designed feature to the relevant stressors and coping strategies, with most features linked to one or more stressors and coping strategies (see table 1 in Appendix A).

4 Findings

To handle the stressors experienced when using social media, our participants deployed several ways of coping: 1) withdrawal, 2) economising energy, 3) audience management, 4) conflict avoidance, 5) explicitation, 6) learning from / with others, and 7) self-management. We explain each of these ways of coping in the sections below, with examples of how our participants' social media features supported their coping strategies.

During the presentation of our findings, we refer to participants and features through a unique identifier (P# and F# respectively). For each participant quote, we also indicate the source material ('Chat' for the chat logs, 'DW' for the digital whiteboard, and no source for the design session transcripts); the session number (S1, S2 or S3); and the participant group (G1, G2, G3 or G4). Participants were not required to identify themselves when adding comments to the digital whiteboards, although some of them did so voluntarily. We have respected participants' preferences, therefore some whiteboard quotes do not include a participant ID.

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[3]https://github.com/autisticadultsonline/autisticadultsonline/tree/main/workshop3_design_cards

4.1 Withdrawal

The withdrawal coping strategy consisted on removing oneself either from a social media platform entirely (e.g. P19 stopping to use Facebook), or from specific interactions within it (e.g. P2 no longer following autism-related content on Twitter). Withdrawal was often partial and temporary, with participants returning for specific purposes (e.g. for professional reasons in the case of P8), or alternating phases of withdrawal and engagement (e.g. P5).

Withdrawal was a strategy to manage the negative impact of irrelevant and / or hateful social media content. For instance, P16 would deal with *"really outrageous"* content on Twitter by putting their *"phone down and go[ing] for a walk"* (P16, S1-G4). Withdrawal was also a way to cope with the sensory overload derived from excessive amounts of content, as exemplified by P5: *"I used to be part of some autistic women's groups on Facebook, which I did find valuable for sort of shared experience and things. But I did leave them or unfollow them in the end, because there'd be quite a lot of posts, and it could get a bit overwhelming"* (P5, S1-G1). Finally, P8 illustrated how withdrawal could help tackle the compulsion to use and engage on social media. She found herself enjoying TikTok a tad too much, so she decided it would be prudent to stay away from it altogether:

> TikTok, I know for a fact is going to be dangerous for me. (...) I love the fast-form nature of it. But because it's all video: whoa, boom! Two hours of your life gone. And so I've made a choice to stop engaging with it, because I recognise the hallmarks of getting addicted to social media again, and I don't ever want to be back in that place. (P8, S2-G2)

Three of our participants' imagined features attempted to enhance the withdrawal strategy: F6, F13 and F29. F13 by P7 supported withdrawal as a means to tackle sensory overload. It provided the ability to remove certain types of content from one's social media feed for a user-specified period of time. Examples of content to filter out included *"different views"*, *"particular hashtags"*, *"tense arguments"* and *"everything from strangers"* (P7, S3-G2). While discussing the feature, P8 explained she would use it to avoid *"people's food pictures"* (P8, S3-G2), which gave her nausea and made her feel sick.

F29 by P17 supported withdrawal as a means to tackle the compulsion to use and engage on social media. The feature suggested an 'out of office' setting similar to the one available in email clients:

> it's like an out of office feature (...) I'll post something or I respond to somebody, and I'm not in the right mental frame straight off to receive all the replies. Then it would be quite nice to put a delay on it. Let's say, okay, I'll go away and meditate for half an hour and maybe I'd be better off and I can deal with it all [when I] come back. (P17, S3-G4)

This functionality was not only a means to ringfence time in order to prepare oneself for the upcoming content. It was also a way to escape the compulsion to continuously check for reactions and replies: *"otherwise it's like it keeps nagging me: oh, has somebody replied? Shall I check? If I know I've got a two-hour window [when] I'm definitely not going to see anything, then I can walk away probably calmer"* (P17, S3-G4). Fundamental to this feature was its public-facing nature, which created awareness and gave visibility to temporary, voluntary withdrawal: *"I would like other people to see that I actually can't see the response at the moment ... Sort of like this: I am not available at the moment but I will reply on my return"* (P17, S3-G4).

4.2 Economising energy

Our participants showed preference for social media interactions that required low amounts of effort. This included pre-packaged interactions [11] such as 'likes', Facebook 'reactions', and tagging

other users: *"my friends and I, we are really efficient. We don't send texts with lots of intro. We just tag people in a comment, no other action required"* (P8, S1-G2). Low-effort interactions also included less laborious forms of user-generated content, such as sharing other people's posts on Facebook, retweeting and quote-tweeting on Twitter, as well as replying or commenting on existing threads. As one of our participants wrote: *"Replying is an easier way to engage in conversation"* (DW-G4).

Our participants described a spectrum of effort in social media interactions, with canned responses such as emojis on the effortless side of the spectrum, starting brand new threads on the effort-full side of the spectrum, and commenting somewhere in between. Commenting required more effort than liking, reacting and other forms of canned responses. Posting original content required more effort than commenting. P7 explained: *"I actually find it quite difficult (...) starting a thread myself (...) I find it much easier to engage in threads that are already out there on topics related to my special interests and then comment on those"* (P7, S2-G2).

Low-effort interactions appeared as a coping strategy to reduce sensory overload and the effort of conveying and interpreting meaning. Our participants worked hard to ensure they communicated what they wanted to say in order to avoid misunderstandings. This intense effort resulted in draining and tiresome social media engagements. Low-effort interactions were a way of economising and managing the limited amounts of personal energy our participants could afford to spend on social media.

However, this way of economising energy was not without problems. Although pre-packaged interactions were certainly useful and appreciated, participants raised the issue of debased communication quality. There was a perception that the lower effort required undermined the value of the communicative act. This was mentioned in relation to emojis, which P4 called *"lazy language"* (P4, S1-G1): *"sometimes if someone sends me just an emoji (...) I feel a bit almost kind of fobbed off. Like: well, you can't be bothered to respond to me properly. So when I send one I feel like it's a bit rude"* (P4, S1-G1). The issue of debased communication quality was also raised by P5 about the 'like' interaction.

Four participant features addressed the economising energy strategy: F2, F15, F20 and F33. All four moved away from pre-packaged interactions, proposing instead supportive tools that did not impact communication quality. F2 by P1 consisted of an audio preview, an utility that would read aloud your own social media content before posting it: *"it might be a good idea to have a feature that reads back your own posts to you if you want it read, so that you can actually hear how it sounds when it's spoken"* (P1, S3-G1). Listening to her own content would help P1 verify that she is actually saying what she wants to say:

> [W]ith a lot of autistic people, (...) sometimes we're trying to communicate one thing, but that's not quite how it sounds when it's said aloud, and sometimes just having it said aloud to you may change your mind about what you want to post or how it comes across (...) it might get us to, you know, rethink (...) what we're going to put and change it if we see fit. (P1, S3-G1)

The audio preview would reduce the effort required to convey meaning, while increasing P1's confidence in her communications: *"also not have to worry about how it (...) comes across, because if (...) you hear it and then it sounds fine then you know. You know you're all good and you can post confidently without worrying that you're not communicating what you want to communicate"* (P1, S3-G1).

F15, F20 and F33 proposed the automation of posting. For instance, F33 by P19 suggested the ability to create a *"reservoir"* (P19, S3-G4) of content and schedule publication from it at certain intervals:

I can't always be bothered (...) to make a post every single day. So this made me think that it would be quite handy if I could define a folder that would have nothing but content (...) that would be appropriate for my Instagram. So then it would just keep posting stuff from this little reservoir. (P19, S3-G4)

The ability to store excess content and arrange its automated publication would reduce the effort involved in engaging with social media regularly and frequently, thus better accommodating the sensory sensibilities of autistic people and helping address sensory overload.

4.3 Audience management

Participants deployed different approaches to manage the ambiguity surrounding their social media audience. We have grouped those approaches under the umbrella term of "audience management", which includes four distinct ways of coping: 1) interacting within closed and moderated groups (management through segmentation); 2) carefully scoping and delimiting platform use (management through constrained use per platform); 3) researching potential connections (management through vetting); and 4) taking advantage of impermanent content features (management through ephemerality).

Social media groups have been found to support autistic adults' interest-based approach to sociality (e.g. [49]), which refers to autistic adults seeking contact with those who share their interests, hobbies and experiences. Thematic groups in social media platforms help autistic adults find and join those communities of interest. Our participants made extensive use of Facebook groups and subject-structured platforms such as reddit, Discord and Quora. Groups also helped with exercising control over one's social media audience by segmenting it, enclosing it or reducing its size. Our participants often engaged with closed, moderated groups, which to them felt safer: *"I can be in a music group, and it's really well moderated. Then yes, I will let a bit more of that into my life, and I'm really enjoying it because I know the privacy's there and I know the control is there"* (P2, S2-G1). Participants also gravitated towards messaging platforms such as WhatsApp and Messenger, as well as Discord, in order to create and interact with closed groups: *"my (...) main friend group they also seem to be autistic. And we use predominantly Facebook Messenger, but more over the last couple years Discord as well"* (P13, S1-G4).

A second approach to tackle audience uncertainty was scoping and delimiting use per platform. Each social media platform would be assigned to a specific set of connections, often belonging to different spheres of participants' lives. For example, P7 kept *"Twitter separate from"* their *"real social circles"* (P7, DW-G2). P9 explained that there are things he would not post on Facebook *"because my older family will get upset about it"*. He reserved Facebook to interact with family members, while communicating with friends *"through a different platform (...) or even using private chat groups"* (P9, S2-G3). Others, like P20 and P6, set rules where certain audiences were combined with specific principles for engagement.

A third way of managing one's social media audience was researching potential new connections or followers. This practice was deployed by P5, P12 and P14. P5 kept a rather popular Instagram account that she used to promote her design and craft work. She had gotten into the habit of reviewing new followers to verify they were genuine, and had developed a good sense of what are the indicators of dubious users. P12 vetted those who wanted to join the painting Facebook group she moderated: *"I make sure I look at all their profiles. (...) I look to see whether they've been banned from any of the groups. And also what sort of images they've got so that I can look through all their art, what they posted, to see whether it's actually appropriate or not."* (P12, S2-G3).

Finally, some participants took advantage of ephemeral content to alleviate audience-related anxieties about privacy and the permanence of digital records. For example, P8 appreciated Clubhouse because she did not need to *"worry about people capturing your comments"*, and for what she perceived as the absence of a *"perm[ament] record of everything you say"* (P8, S1-G2). P4 and P5 used Instagram and Facebook stories because they felt *"a bit less scarely permanent, because they're up for a bit and then they disappear"* (P5, S3-G1).

Ten of our participants' features related to audience management: F1, F5, F7, F9, F19, F23, F26, F27, F28 and F30. For instance, F19 proposed an interest-based people search, as a way of connecting with others on the basis of common interests, rather than personal relationships. F5 requested the ability to *"delete my posts, reactions or replies to other people after a set time interval"* (P5, S3-G1). Ephemeral content helped address concerns about privacy, and about unexpected consequences of old posts, *"making it easier to manage that feeling that I've basically got years and years of social media history all over the internet"* (P5, S3-G1).

Meanwhile, F7, F23, F28 and F30 facilitated the assessment of new connections, in response to spurious or fraudulent contact requests, and potentially unsavoury interactions with unknown social media users. These features would help participants learn more about prospective connections, enabling a carefully curated and more informed expansion of their networks. The focus on these features was not on finding out personal information, but mostly on people's views about particular subjects as expressed in the content they posted. For instance, in F28, P16 wanted to search for keywords or themes people had posted about or reacted to in their social media timelines, *"to kind of get the measure of them and (...) what their values are (...) whether they seemed like a fairly decent person but actually they've said something a few months ago that I missed that was really horrible"* (P16, S3-G4).

4.4 Conflict avoidance

Most participants avoided getting embroiled in any kind of controversy or argument on social media. Exposure to content perceived as confrontational, hateful, extreme or toxic had strong negative effects on participants' well-being. For instance, P4 tried *"not to get involved in any arguments"* because she found them *"too stressful"* (P4, S1-G1). P11 was never *"openly confrontational"* (P11, DW-G3) because he found it *"too exhausting"* (P11, S1-G3). P19 avoided *"a lot of conflict sort of stuff on all social media things"* because *"[i]t can be very upsetting. Sometimes it depresses me"* (P19, S1-G3). Conflict avoidance encompasses three distinct ways of coping: 1) avoidance through not posting, 2) avoidance through positive content, and 3) avoidance through platform features.

The number one approach to avoid conflict was refraining from posting and commenting altogether. For instance, P9 wrote: *"tend not to post to avoid conflict or misunderstanding"* (P9, DW-G2). P4 opted for holding back: *"sometimes I see (...) political viewpoints or to do with autism and I think well, that's annoying and I don't agree with that. Or yes, I agree with that. But I hold back on commenting sometimes, because it's just too tiring"* (P4, S1-G1). P19 explained: *"sometimes I want to make a comment but I will avoid it because I'm scared of adding more confusion into the mix, or getting caught up in the controversy myself"* (P19, S1-G3). P20 was also put off by polarised positions.

A second way of avoiding conflict was generating only positive content. P12 adopted this approach in the Facebook group she moderated: *"I run a Facebook art group, so always try to comment positively to engage with the group and encourage them. If I can't say something positive, then I might just do 'like'"* (P12, DW-G3). This participant *"never put anything negative at all"* (P12, S1-G3). P19 did a similar thing with his comments on reddit. He limited himself to *"positive affirmations, congratulations and admiration"* (P19, DW-G3). P6 liked everything on Instagram; P11 replied *"to send supportive comments"* (P11, DW-G3); and P20 always commented *"in affirmation"*

on Facebook: *"like 'that's nice', or 'glad you enjoyed that' or 'that looks really good'"* (P20, S1-G4). Finally, participants such as P11, P4, P6, P19, P2, and P4 made good use of platform features that supported their conflict avoidance strategy, such as muting, blocking, downvoting and reporting content.

Seven participant features related to the conflict avoidance way of coping: F2, F8, F10, F16, F28, F35 and F37. Several of them (e.g. F8, F10 and F28) relied on muting, blocking or removing offending posts. For example, F8 would allow users to block inappropriate language and images coming from total strangers. The exception was F35 by P19, which tackled the problem of toxic content by nurturing positive behaviour. P19 drew inspiration from video game design to come up with a scheme that would reward exemplary social media netizens:

> Let's say you were doing loads of posts, (...) that you were getting good reactions, good replies. That other people were liking the things that you were saying (...), then you would earn a special banner around your profile or something. (...) you would be a super post model netizen, and that would give you (...) good social standing in the social media setting, and this would also encourage people to be nicer, because they would be rewarded for their niceties and if they were unpleasant, well, they wouldn't get as much attention, they wouldn't have the special banners. (P19, S3-G4).

P19 conceived of this feature as a way to address the root problem of hostility and aggression in social media: *"it would just be (...) a fun way to encourage (...) good behaviour"* (P19, S3-G4). The feature was named collaboratively between P19 and P18 who, after some discussion, settled on *"Don't be a dick. Win prizes"* (S3-G4).

4.5 Explicitation

Explicitation [6] is a communication style by which autistic people articulate social etiquette and interaction nuances that are usually left unspoken by non-autistics. Following explicitation practices, participants added content and expressions to their social media posts with the sole purpose of clarifying or qualifying their tone and intention. They did so as part of their efforts to avoid confusion and misunderstandings: *"I will state my intent if I'm worried my tone could be misinterpreted, or if I'm particularly emotional at the time and so can't curate my words so carefully"* (DW-G3). P1, P8, P17 and P20 connected this behaviour with negative communication experiences outside social media, either face-to-face or through other digital channels:

> I think that on social media, it can be helpful for me sometimes to be able to convey what I actually mean. Like I can put a laughing face on something that is supposed to be sarcastic so that it's not taken the wrong way, because I struggle with that in real life. I have a real problem with tone, and people understanding my tone (...) sometimes (...) I think I've come across a bit abrupt. (P1, S1-G1)

In fact, participants often qualified and clarified their interventions during the participatory design sessions as well, using expressions such as *"I don't know how to phrase this not to sound awful"* (P20, S1-G4), *"I'm gonna totally misquote now because I've probably misremembered what was said"* (P16, S1-G4), *"I don't know if it's kind of relevant to your question but ..."* (P4, S2-G1) or *"Sorry I was blunt"* (P18, S2-G4). This suggests that qualifying and clarifying tone and intention on social media may be a direct transposition of a coping strategy used in other spheres of communication.

By far the most common way of qualifying and clarifying tone and intentions on social media was using emojis which, in spite of their challenges [4], were generally appreciated for this purpose: *"I use emojis quite a lot. The heart emoji is my friend. Because (...) if in doubt I'll just put that at the end of the sentence to kind of just soften my tone. It just helps indicate that I'm not trying to be edgy (...) just makes things a bit more chill."* (P15, S1-G3). Some participants also mentioned complementary
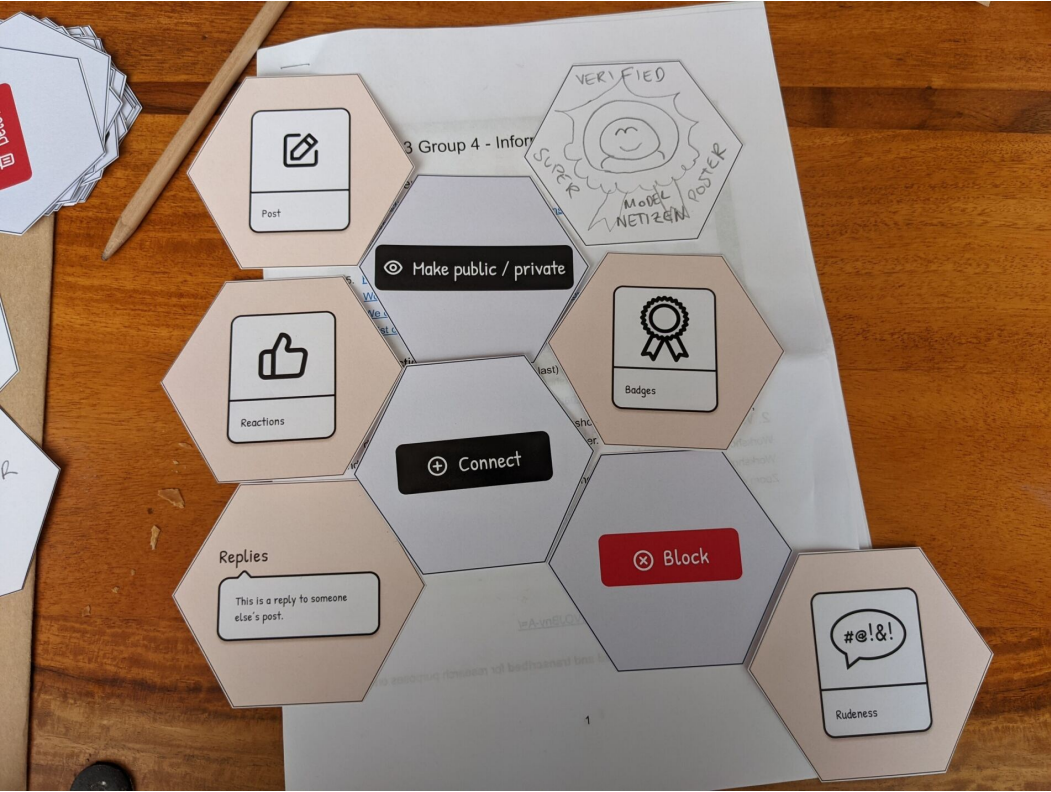
Fig. 1. P19's "Don't be a dick. Win prizes" feature (F35) as composed with the printed design cards.

strategies such as using all capital letters and exclamation marks (P12), writing slash sarcasm in alternating case at the end of a sentence (P15, P19), or expressions like: *"I'm joking, by the way"* (P20).

Five of our participants' features related to explicitation (F12, F14, F18, F22 and F36), with all five attempting to support the normative, non-autistic use of emojis and hashtags. F12 by P7 was called "What will this mean?". It was a way to explore the different meanings resulting from combining the same text with different emojis and hashtags:

> I would like to be able to preview what I'm posting or commenting will mean, particularly with emojis, as they're not (...) always the clearest things, and I think using different ones can change the meaning of your post. (...) I'd (...) like to be able to try out a few different ones, and then (...) get a bit of an explanation (...) back at me saying: (...) this is what it would mean if you used this emoji or this hashtag. This is how other people will interpret it. (P7, S3-G2)

In a similar vein, F14 by P8 enhanced predictive text with emoji suggestions, and F36 by P20 would assist emoji use by explaining their meaning. By using platform-provided features like emojis and hashtags in what was perceived as the normative way (i.e. the non-autistic way), participants would remove the need to more explicitly articulate their meaning and intent, and could engage in implicit communicative practices on an equal footing.

4.6 Learning from / with others

Participants worked with others to convey and interpret meaning, and to express emotional intent on social media. They learnt from others indirectly by observing and reproducing what other people did, which has been called "Learning by Lurking" [26]. But participants also learnt with others directly, by collaborating with people they trusted. Therefore, learning from / with others encompasses three distinct ways of coping: 1) learning from others through observing, 2) learning from others through mimicking, and 3) learning with others.

Observing and reproducing the behaviour of others on social media was a fundamental source of information in terms of discovering and unravelling mainstream interactional norms. This was often done when using specific social media features such as emojis: *"I definitely copy the emojis that people around me use, and also copy the circumstances that they use them in"* (DW-G1); and hashtags: *"I only use hashtags if it's very clear what types of posts typically use that hashtag. I probably need to see over 100 similar posts with one hashtag before I'll be able to use it"* (P7, DW-G2).

Participants also collaborated closely with others with whom they felt comfortable experimenting and exploring interactional norms. For example, P9 tended *"to use emojis with close friends in closed groups"*. P7 did a similar thing before incorporating new features or items into more public interactions:

> I need to figure out how they work before I use them. So, with emojis and GIFs, I tend to select from a very small group that I know the meaning of, and I know that they (...) won't be misinterpreted. And I tend to use them with close friends first so that, if I've misused them or whatever (...), my friends are pointing them up before I then feel comfortable using them in public spaces. (P7, S1-G2)

In another example, P3 used her partner as a sounding board when striving to convey meaning: *"I normally spend ages and ages obsessing over a reply to send to someone online that other people can see (...) And I go ask my girlfriend multiple times like: 'is that okay to post?', even if I know that it is, I think, just for reassurance"* (P3, S2-G1).

One imagined feature (F17), created by P12, sought to support direct collaboration with others. The feature proposed a crowdsourced interpreter, through which one could source opinions and perspectives from trusted others regarding how a post was written. This feedback could then be used to edit the content of the post, or to discard the post altogether. P12 wanted the feature to apply both before and after posting. For the latter, she conceived an option to recall a post. The feature could not only be used for one's own content, but also to aid interpretation of other people's content, thus applying to both aspects of sensemaking.

4.7 Self-management

Participants described several initiatives they had undertaken to manage their own behaviour on social media, and to rein in personal patterns of use they found unsettling. These self-management strategies comprised three ways of coping: 1) self-management through caution; 2) self-management through reflection and self-awareness; and 3) self-management through taking action.

Participants spoke about exercising extreme caution when using social media, as a way to manage potential misunderstandings or confrontation:

> I'm not always understanding what I'm doing so I have to be really, really careful (...) because I think I'm coming over wrong or saying the wrong thing in the wrong way, because other people are interpreting it like I'm angry or like I'm shouting at them (...) and I'm not, seriously not, it's just how I would do it. (P12, S1-G3)

Similarly, P1 spoke about *"being very very careful about what I do say and how I say it, especially if I'm communicating with people who aren't autistic, because I almost assume that they're not going*

to understand me" (P1, S1-G1). P19 identified himself as a "lurker", which in his case was also an expression of caution: *"I would more classify myself (...) as a lurker. So I prefer to just be an observer. Very rarely do I actually make a comment. I'm very cautious like that"* (P19, S1-G3).

Meanwhile, reflection and self-awareness were a strategy to ameliorate the compulsion to use social media. P9 had decided to *"step back"* (P9, S1-G2) from these platforms, to *"re-evaluate"* how social media could work for him. P16 made a conscious effort to remind herself that people on social media *"aren't my friends, because sometimes I can sort of overshare a bit, or say things that perhaps I should only be saying to friends, and forget that there's these other people that I don't really know"* (P16, S2-G4).

Other participants described taking action to reduce the time they spent on their mobile phones in general, and on social media in particular. P2 had decided to stop picking up her phone after 17:00h, and was trying to limit her time on Facebook to 10 minutes per day. P18 had blocked certain websites and disabled all mobile apps at 22:00h in the evening. Most interestingly, as part of her participation in our study, P17 had decided to run a self-awareness experiment. She started logging the time she spent on social media, and wrote about it in the chat:

> P17: it really works, like mindfulness. The reason I think it works is because you start thinking about it carefully, what am I doing here, what is the purpose I logged on today ...
> Researcher: Do you do this regularly P17?
> P17: I did it for the purpose of this study
> Researcher: That's interesting! Were you surprised at all by your log?
> P17: Went from 2 hours a day to 5-10 minutes a day.
> (Chat, S2-G4)

These reflective and self-management practices contrast sharply with social media platforms' drive to maximise time spent and engagement by users. Eleven participant features contributed towards self-management in social media use: F3, F4, F10, F11, F15, F20, F24, F25, F31, F33 and F38. For instance, F4 tackled the compulsion to spend time on social media through self-awareness and by subverting existing platforms' priorities and policies. Created by P4, this feature was named "Mental health protector / Self-care timer". It targeted a behaviour the participant called "doom scrolling", i.e. the act of spending excessive amounts of time on social media feeds. The feature consisted of a prompt that would suggest an alternative activity and act as an invitation to abandon the social media application:

> [S]ometimes (...) if you're in a bad way, you can end up (...) doom scrolling. Maybe might be good to sort of have a 'set your own time' and say: you've been on this platform now for like an hour and a half. Are you okay? [Laugh] Do you want to go for a walk, or go and bake a cake? (P4, S3-G1)

This represented a subversion of platforms' existing practices, which seek to maximise time spent and user engagement. It was accompanied by an inversion of their algorithms. Rather than serving more content of the same kind, the platform would serve the opposite type of content after a while: *"as well a way of kind of changing the algorithms. So that the algorithm could see if you were looking at lots of negative stuff, and instead of giving you more negative stuff, because you're looking at lots of negative stuff, maybe giving you some bunny rabbits (...) To kind of counteract."* (P4, S3-G1).

F3, also by P4, used content filtering to address sensory overload. The feature, called "Activate stillness", consisted of an alternative viewing mode for social media feeds that one could turn on at will. This mode would remove all sound and moving images, leaving only static images and text, thus providing a calmer social media experience. Filtering also appeared in F10, F25 and F38. Filters would be applied to avoid uninteresting content, rudeness and posts from complete strangers.

Through these features, participants demanded control over the content presented to them by the social media platforms, which they could use to support their self-management ways of coping.

5 Discussion

Our design collaboration with autistic adults yielded numerous examples of coping instances deployed in response to specific stressors associated with social media use. We have classified those instances into a set of coping strategies that demonstrate the rich, varied and nuanced nature of our participants' coping behaviour. That behaviour displays commonalities with previously identified coping strategies in the context of social media. For instance, like participants from earlier studies, our own deployed a cautious attitude when posting [36]; they segmented their audience across platforms [60]; and deleted or reported offensive and harmful content [36]. However, our participants' coping strategies also include singular approaches and responses to stressors. In what follows, we examine the unique aspects of autistic coping in the context of social media, we identify areas where they challenge prior conclusions about the nature of autistic coping, and we advocate the value of coping behaviour as design material.

5.1 Particularities of autistic coping

The coping strategies presented in our findings include unique approaches and responses to stressors. Explicitation and economising energy seem particular to our autistic participants. Explicitation refers to the autistic practice of articulating elements of communication that are often left implicit by non-autistic interlocutors [6]. In non-autistic communication, desires and intentions often remain unspoken, expressed instead through other means (e.g. via tone, gestures and facial expressions in real life, or emojis in digital platforms). This generates ambiguities that are usually disentangled through command of social rules, etiquette and conventions [6]. Our autistic participants reported to struggle with both interpreting and expressing those implicit meanings. To work around this challenge, they explicitly stated their intention when posting on social media, mostly through using emojis. This introduced additional problems, since it required understanding the conventional meaning of specific emoji symbols. Our participants' features addressed this latter challenge, by envisioning tools that would support the "correct" (i.e. non-autistic) use of emojis, in order to guarantee that their stated intent accurately conveyed their actual intent. Through features that suggested appropriate emojis (F14), explained their meaning (F36), or enabled experimentation to find the most suitable one (F12), participants envisioned technology helping them better express their intent in ways that match non-autistic social media expression. Stress around the need for explicitation was often connected with negative past experience, both communicating through social media and in real life. The explicitation coping strategy in the context of social media thus reflects the profound impact that non-autistic intolerance towards unfamiliarity with social etiquette has on autistic people [6].

Economising energy refers to strategies and actions that aim to minimise the effort required to engage on social media. Economising energy manifested in the use of pre-packaged interactions such as reactions or tagging, as well as in a preference for commenting on existing threads, rather than starting new ones. Autistic adults being partial to these low-effort interactions has been identified in previous studies (e.g [11, 34, 69]). In [34], the number of Twitter replies was twice the number of original Twitter posts. According to [11, p. 429], pre-packaged social interactions *"were helpful in overcoming the hurdles to initiating contact"*. In our study, pre-packaged interactions provided a means to manage sensory overload and the effort of expressing meaning.

The need to economise energy may derive from the high levels of stress autistic people experience in day-to-day life [46, 47], but also from the acute impact of common social media stressors on autistic people, such as the exposure to negative and harmful content, the need to convey and

interpret meaning, and never-ending content feeds [4]. The combined effect of these stressors pushes autistic people to carefully regulate the amount of time and energy they dedicate to social media. Features like the automation of posting (F15, F20, F33) assisted effort management, by allowing participants to evenly distribute their own content, rather than having to post it at creation time. Economising energy was also enhanced through features that supported content creation and expression (F2).

Other strategies, such as avoiding conflict and learning from / with others, present differences in scale and nature. Lampinen et al.'s participants, like ours, refrained from posting as a way of avoiding conflict [36]. To implement this strategy effectively, they relied upon shared conventions or rules of thumb. Yet it is precisely those implicit, shared conventions that our autistic participants found hard to unravel. As a result, a popular coping strategy amongst social media users requires additional effort for autistic people. This additional effort in turn contributes to the need for the economising energy strategy, as a way to manage exceedingly strenuous and taxing social media interactions.

Finally, although all social media users are likely to observe and adopt common practices, and to seek the opinion of others in relation to social media interactions, our participants seemed remarkably aware of such behaviour. They precisely recalled specific purposes (e.g. using emojis, applying hashtags) and situations when they learnt from others, both directly and indirectly. This acute self-awareness may be related to the fact that autistic camouflaging involves similar strategies, such as acquiring social skills from others and popular media, copying body language and facial expressions, and seeking support to socialise [27]. When learning from / with others in the context of social media, our autistic participants were simply deploying their existing skills and practices to serve them in a different context.

5.2 Challenging prior conclusions about autistic coping

Literature on autistic coping has reported a preference for "disengagement", "escape" or "avoidance" strategies [47], which involve attempts to draw away from the stressful situation [57]. Disengagement coping is often portrayed as "maladaptive" and connected to poor mental health outcomes, such as higher levels of depression and anxiety, and reduced well-being [47]. However, it is also possible that disengagement coping strategies have distinct advantages for autistic people, by allowing them to temporarily retreat and recover, and by blocking further sensory stimulation and thus helping avoid overload. Studies with autistic children and adolescents have associated avoidant coping strategies with fewer depressive symptoms [46]; and the positive role of avoidance coping mechanisms has also been highlighted in dealing with hyperreactivity to sensory stimuli [41]. Our participants provide a further example, since their social media withdrawal strategies did appear to be "good news" ways of coping [57]. Their withdrawal was mostly partial, practised as a form of self-protection, and as a tool to manage sensory overwhelm. These examples question blanket notions of disengagement coping as negative or counterproductive, and contribute to an alternative explanation to autistic adults' preference for this style of coping.

Literature on autistic coping has also suggested that autistic traits may restrict autistic adults' willingness to seek assistance and support from others [25]. However, our participants often reached out as a way of coping with social media stressors, both indirectly through observation and adoption of others' behaviour, and directly by asking for help from trusted others. The former, what we have called learning from others through observing and mimicking, has been identified as a way of making sense of sensory differences [41], but also as a common approach in camouflaging [28], a behaviour with potentially negative implications for autistic people [54]. Autistic people place high value in understanding social interactions [54]. Camouflaging is perceived as alienating and coercive precisely because it does not require comprehending the meanings embedded in those

interactions [54]. This emphasis on understanding contributes to explain the stress our participants experienced in relation to conveying and interpreting meaning when using social media; and the importance they gave to accurately expressing what they wanted to say, and understanding precisely what was meant. Meanwhile, coping by learning with others challenges stereotypes about autistic people's unwillingness to request help from others. This coping strategy provides an example of "reframing" [54], where the ambivalence of social situations is dealt with by autistic people through approaching others for clarification. This reframing is the opposite of camouflaging, because it exposes the autistic person's needs and understandings to the non-autistic interlocutor. According to Schneid and Raz, "reframing" makes autistic perceptions public and therefore has a legitimising effect [54]. From a "reframing" perspective, when our participants involve trusted others in the process of making sense of their social media interactions, and when they propose features to formalise and enable such involvement (F17), they are making a stand for the validity and genuineness of autistic sensitivities and styles of sociality.

These findings underscore the significance of interrelatedness and mutual enabling. These concepts are central to emerging autism studies literature, as can be appreciated in, for instance, Anna Stenning's work [59], which emphasises the relational constitution of autistic experience. The contrast between camouflaging —a socially coerced adaptation that forecloses mutual understanding— and reframing —wherein autistic individuals explicitly seek clarification and invite co-construction of meaning— exemplifies a shift toward more dialogical and ethically responsive modes of interaction. Such acts of reframing constitute a form of mutual enabling, where both autistic and non-autistic interlocutors participate in shaping communicative environments that affirm neurodivergent forms of perception and expression. María Lugones' notion of "loving perception" [40] becomes relevant in this context. It entails an attitude of openness, attentiveness, and epistemic humility in encountering others' worlds. Lugones' concept of "World-travelling" [40] —the practice of moving across social worlds with a disposition of care— offers a critical lens through which to interpret our participants' efforts to involve trusted others in navigating the ambivalence of social media interactions. Rather than interpreting these actions as compensatory, they may be understood as a form of resistance: as a demand for recognition and shared responsibility in meaning-making.

5.3 Ways of coping as a design material

The social media features created through this study reveal how our autistic collaborators envision design supporting and enhancing their existing coping mechanisms. They also illustrate how coping can serve as inspiration for innovative design work. Coping scholarship has focused on studying the effectiveness of coping strategies in terms of mental health, life outcomes and overall well-being. It has also highlighted the importance of uncovering and understanding coping strategies in order to develop tailored stress management interventions (e.g. [46–48]). We, however, are interested in the potential of coping strategies as a design material. In addition to expanding our knowledge on autistic coping, our work demonstrates how the study of coping behaviour can contribute to technology design. Coping strategies are useful for designers because, like workarounds, they can be a *"source of change"* [1, p. 1049] and of *"future improvements"* [1, p. 1052]. Coping processes surface existing behaviours and practices that can point to problematic areas (i.e. sources of stress) for technology users. As with workarounds, coping processes and actions are candidates to be supported, enhanced, and sometimes discouraged through design [1]. Autistic adults' heightened need to respond to and manage stress suggests autistic coping as an ideal starting point for explorations about coping as a design material.

We follow on the path of other HCI and CSCW scholars, who have highlighted the usefulness of studying coping for design purposes (e.g. [13, 66]). For instance, [66] suggested that coping

mechanisms can pinpoint areas for improvement in social media interfaces, and inform design guidelines. Our participants' coping strategies and their social media features indeed identify problematic aspects of the design of social media platforms for autistic people. These include the lack of control over algorithmic content feeds; the lack of control over the sensory aspects of the social media experience; the ambiguity, uncertainty and poor visibility surrounding audiences; the exposure to toxic and confrontational content; and the lack of support and tools for self-management in use. These areas should be prioritised if social media platforms are to accommodate autistic people's attention strategies and approach to sociality.

Particular attention should be paid to enabling collaborative behaviours in content production. Prior work has stressed the importance of collaborative, preventive coping strategies in social media use, and lamented the lack of support for them in existing platforms [12, 36]. The absence of tools for collaboration erects barriers to explicit negotiation of behavioural boundaries, and pushes users towards mental coping strategies instead, forcing them to rely on implicit rules of thumb about what constitutes appropriate behaviour. This push towards relying on implicit social rules may be particularly damaging for autistic people, for whom neurotypical social conventions may not be immediately obvious. Features that enable collaborative and explicit negotiation of behaviour, and therefore support autistic explicitation strategies, are thus critical to better accommodate autistic users. [36] proposed a "preview space" where content would be posted initially to concerned parties only, so that boundaries and social etiquette considerations could be negotiated before making the content visible to a wider audience. The crowdsourced interpreter feature (F17) created by P12 provides another example of how design could support collaborative and preventive coping strategies, this one coming from autistic adults themselves. Introducing collaborative tools would contribute to design that can actively support mutual sense-making, shifting the focus from individual expression or consumption to co-created understanding between users. Rather than designing simply for interaction (e.g. commenting, liking), this type of design would foreground the relational work of meaning-making, i.e. the ways people interpret each other, negotiate ambiguity, and respond across difference.

In prior scholarship, HCI and CSCW researchers, as subject matter experts, have issued design recommendations based on coping-related findings (e.g. [13, 36]). Our work, however, has taken a different direction. Here, it is participants themselves who build upon their own coping behaviour to propose new features for social media platforms. Although coping strategies were not explicitly presented as such during our design activity, participants distinctively addressed them through their design work. Their imagined features constitute autistic-led contributions towards design interventions, hinting at potential new functionality and directions for design. Our participants' design work thus suggests a new methodological approach that starts by purposefully identifying and classifying ways of coping, which can then be used as inspiration for subsequent design activities. We look forward to exploring and applying this approach in areas beyond social media. Schneid and Raz maintain that emancipatory, participatory research provides a unique opportunity to explore the limitations of our neurotypical-led scholarship, opening paths for the "neuro-diversification" of academic disciplines [54]. Similarly, participatory design grounded on autistic coping practices may offer an opportunity for the neuro-diversification of digital design.

6 Conclusion

In this paper, we have described a collaborative design inquiry about autistic ways of coping in the context of social media. Through an inductive, bottom-up approach [57], we have identified a set of social media-related stressors and a set of coping instances, which we have grouped into a set of distinct ways of coping. We have demonstrated how our participants' design work speaks to their coping strategies, using some of their social media features as examples. We conclude that the study

of autistic coping practices presents an opportunity for neuro-diversifying the design of technology. In the case of social media, this would entail not simply accommodating autistic sensitivities, but privileging mutual sensemaking. Neuro-diversifying social media would require reinventing it as a site of ethical relations across difference, and not just interaction; as a place where understanding is not presumed, but respectfully co-constructed. This would open space for social media platforms to support deeper recognition across neurotypes, cultures, and communicative worlds.

Acknowledgments

References

[1] Steven Alter. 2014. Theory of Workarounds. *Communications of the Association for Information Systems* 34 (2014), 1041–1066. https://doi.org/10.17705/1CAIS.03455

[2] Suhaib Aslam, Jelle van Dijk, and Edwin Dertien. 2019. CoCoCo: Co-designing a co-design toolkit for co-bots to empower autistic adults'. In *Proceedings of the 4th Biennial Research Through Design Conference*. Delft and Rotterdam, The Netherlands, 1–16. https://doi.org/10.6084/m9.figshare.7855904.v1.

[3] Christopher Barber. 2017. Social media and autism spectrum conditions. *Practice Nursing* 28, 7 (2017), 292–298. https://doi.org/10.12968/pnur.2017.28.7.292

[4] Belén Barros Pena, Nelya Koteyko, Martine Van Driel, Andrea Delgado, and John Vines. 2023. "My Perfect Platform Would Be Telepathy" - Reimagining the Design of Social Media with Autistic Adults. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*. Association for Computing Machinery, New York, NY, USA, 1–16. https://doi.org/10.1145/3544548.3580673

[5] Eric P.S. Baumer, Phil Adams, Vera D. Khovanskaya, Tony C. Liao, Madeline E. Smith, Victoria Schwanda Sosik, and Kaiton Williams. 2013. Limiting, leaving, and (re)lapsing: an exploration of facebook non-use practices and experiences. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '13)*. Association for Computing Machinery, New York, NY, USA, 3257–3266. https://doi.org/10.1145/2470654.2466446

[6] Ben Belek. 2018. Autism and the Proficiency of Social Ineptitude: Probing the Rules of "Appropriate" Behavior. *Ethos* 46, 2 (2018), 161–179. https://doi.org/10.1111/etho.12202

[7] Scott Blum, Marnie Brow, and Roxane Cohen Silver. 2012. Coping. In *Encyclopedia of Human Behavior (Second Edition)*, V. S. Ramachandran (Ed.). Academic Press, San Diego, 596–601. https://doi.org/10.1016/B978-0-12-375000-6.00110-5

[8] Virginia Braun and Victoria Clarke. 2020. Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. *Counselling & Psychotherapy Research* 21, 1 (2020), 37–47. https://doi.org/10.1002/capr.12360

[9] Virginia Braun and Victoria Clarke. 2021. One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology* 18, 3 (2021), 328–352. https://doi.org/10.1080/14780887.2020.1769238

[10] Virginia Braun, Victoria Clarke, Nikki Hayfield, and Gareth Terry. 2019. Thematic Analysis. In *Handbook of Research Methods in Health Social Sciences* (pranee liamputtong ed.). Springer.

[11] Moira Burke, Robert Kraut, and Diane Williams. 2010. Social use of computer-mediated communication by adults on the autism spectrum. In *Proceedings of the 2010 ACM conference on Computer supported cooperative work*. ACM New York, NY, USA, 425–434. https://doi.org/10.1145/1718918.1718991

[12] Hichang Cho and Anna Filippova. 2016. Networked Privacy Management in Facebook: A Mixed-Methods and Multinational Study. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '16)*. Association for Computing Machinery, New York, NY, USA, 503–514. https://doi.org/10.1145/2818048.2819996

[13] Hichang Cho, Pengxiang Li, and Zhang Hao Goh. 2020. Privacy Risks, Emotions, and Social Media: A Coping Model of Online Privacy. *ACM Transactions on Computer-Human Interaction* 27, 6 (2020). https://doi.org/10.1145/3412367

[14] Julia Cook, Laura Hull, Laura Crane, and William Mandy. 2021. Camouflaging in autism: A systematic review. *Clinical Psychology Review* 89 (2021). https://doi.org/10.1016/j.cpr.2021.102080

[15] Nicholas Sheep Dalton. 2013. Neurodiversity & HCI. In *CHI '13 Extended Abstracts on Human Factors in Computing Systems*. Association for Computing Machinery, New York, NY, USA, 2295–2304. https://doi.org/10.1145/2468356.2468752

[16] Hanne De Jaegher. 2013. Embodiment and sense-making in autism. *Frontiers in Integrative Neuroscience* 7 (2013). https://doi.org/10.3389/fnint.2013.00015

[17] Simon de la Rouviere and Kobus Ehlers. 2013. Lists as coping strategy for information overload on Twitter. In *Proceedings of the 22nd International Conference on World Wide Web (WWW '13 Companion)*. Association for Computing Machinery, New York, NY, USA, 199–200. https://doi.org/10.1145/2487788.2487889

[18] Cat Drew. 2016. Exploring the evidence. Retrieved November 16, 2022 from https://openpolicy.blog.gov.uk/2016/03/07/exploring-the-evidence/

[19] Nicole B. Ellison, Jessica Vitak, Charles Steinfield, Rebecca Gray, and Cliff Lampe. 2011. Negotiating Privacy Concerns and Social Capital Needs in a Social Media Environment. In *Privacy Online: Perspectives on Privacy and Self-Disclosure in the Social Web*, Sabine Trepte and Leonard Reinecke (Eds.). Springer, Berlin, Heidelberg, 19–32. https://doi.org/10.1007/978-3-642-21521-6_3

[20] National Institute for Health and Care Research (NIHR). 2022. NIHR public contributor payment policy. Retrieved April 12, 2025 from https://www.nihr.ac.uk/nihr-public-contributor-payment-policy#Rates%20of%20payment

[21] Katie Gaudion, Ashley Hall, Jeremy Myerson, and Liz Pellicano. 2015. A designer's approach: how can autistic adults with learning disabilities be involved in the design process? *CoDesign* 11, 1 (2015), 49–69. https://doi.org/10.1080/15710882.2014.997829

[22] Judith Good, Mark Brosnan, Nicola Yuill, Lisa Austin, and Sarah Parsons. 2016. Putting Technology Design into the Hands of the Users with the ASCmeI.T. App. In *Autism and Technology: Beyond Assistance & Interventions - A workshop at #CHI2016*. http://igw.tuwien.ac.at/chi16-autismtechnology/

[23] Florian Grond, M. Ariel Cascio, Rossio Motta-Ochoa, Tamar Tembeck, Dan Ten Veen, and Stefanie Blain-Moraes. 2019. Participatory design of biomusic with users on the autism spectrum. In *8th International Conference on Affective Computing and Intelligent Interaction*. https://doi.org/10.1109/ACII.2019.8925484

[24] Kim Halskov and Peter Dalsgård. 2006. Inspiration card workshops. In *Proceedings of the 6th conference on Designing Interactive systems (DIS '06)*. ACM, New York, NY, USA, 2–11. https://doi.org/10.1145/1142405.1142409

[25] Tatja Hirvikoski and My Blomqvist. 2015. High self-perceived stress and poor coping in intellectually able adults with autism spectrum disorder. *Autism* 19 (2015), 752–757. https://doi.org/10.1177/1362361314543530

[26] Hwajung Hong, Svetlana Yarosh, Jennifer G. Kim, Gregory D. Abowd, and Rosa I. Arriaga. 2013. Investigating the use of circles in social networks to support independence of individuals with autism. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. Association for Computing Machinery, New York, NY, USA, 3207–3216. https://doi.org/10.1145/2470654.2466439

[27] Laura Hull, William Mandy, Meng-Chuan Lai, Simon Baron-Cohen, Carrie Allison, Paula Smith, and K. V. Petrides. 2019. Development and Validation of the Camouflaging Autistic Traits Questionnaire (CAT-Q). *Journal of Autism and Developmental Disorders* 49, 3 (2019), 819–833. https://doi.org/10.1007/s10803-018-3792-6

[28] Laura Hull, K.C. Petrides, Carrie Allison, Paula Smith, Simon Baron-Cohen, Meng-Chuan Lai, and William Mandy. 2017. "Putting on My Best Normal"': Social Camouflaging in Adults with Autism Spectrum Conditions. *Journal of Autism and Developmental Disorders* 47, 8 (2017), 2519–2534. https://doi.org/10.1007/s10803-017-3166-5

[29] Alicja Jedrzejewska and Jessica Dewey. 2022. Camouflaging in Autistic and Non-autistic Adolescents in the Modern Context of Social Media. *Journal of Autism and Developmental Disorders* 52, 2 (2022), 630–646. https://doi.org/10.1007/s10803-021-04953-6

[30] Robert S P Jones, Ciara Quigney, and Jaci C Huws. 2003. First-hand accounts of sensory perceptual experiences in autism: a qualitative analysis. *Journal of Intellectual & Developmental Disability* 28, 2 (2003), 112–121. https://doi.org/10.1080/1366825031000147058

[31] Bogoan Kim, Daehyoung Lee, Aehong Min, Seungwon Paik, Georgia Frey, Scott Bellini, Kyungsik Han, and Patrick C. Shih. 2020. PuzzleWalk: A theory-driven iterative design inquiry of a mobile game for promoting physical activity in adults with autism spectrum disorder. *PLoS ONE* 15, 9 (2020). https://doi.org/10.1371/journal.pone.0237966

[32] Emma Kinnaird, Catherine Stewart, and Kate Tchanturia. 2019. Investigating alexithymia in autism: A systematic review and meta-analysis. *European Psychiatry* 55 (2019), 80–89. https://doi.org/10.1016/j.eurpsy.2018.09.004 Publisher: Cambridge University Press.

[33] Ksenia Koroleva, Hanna Krasnova, and Oliver Günther. 2010. 'STOP SPAMMING ME!' - Exploring Information Overload on Facebook. *AMCIS 2010 Proceedings* (2010). https://aisel.aisnet.org/amcis2010/447

[34] Nelya Koteyko, Martine van Driel, and John Vines. 2022. Autistic sociality on Twitter: Enacted affordances and affiliation strategies. *Discourse & Communication* 16, 4 (2022), 385–402. https://doi.org/10.1177/17504813211070655

[35] Meng-Chuan Lai, Michael V Lombardo, Amber NV Ruigrok, Bhismadev Chakrabarti, Bonnie Auyeung, Peter Szatmari, Francesca Happé, and Simon Baron-Cohen. 2017. Quantifying and exploring camouflaging in men and women with autism. *Autism* 21, 6 (2017), 690–702. https://doi.org/10.1177/1362361316671012

[36] Airi Lampinen, Vilma Lehtinen, Asko Lehmuskallio, and Sakari Tamminen. 2011. We're in it together: interpersonal management of disclosure in social network services. In *Proceedings of the SIGCHI Conference on Human Factors*

in Computing Systems (CHI '11). Association for Computing Machinery, New York, NY, USA, 3217–3226. https://doi.org/10.1145/1978942.1979420

[37] Airi Lampinen, Sakari Tamminen, and Antti Oulasvirta. 2009. All My People Right Here, Right Now: management of group co-presence on a social networking site. In *Proceedings of the 2009 ACM International Conference on Supporting Group Work (GROUP '09).* Association for Computing Machinery, New York, NY, USA, 281–290. https://doi.org/10.1145/1531674.1531717

[38] Hanoch Livneh and Erin Martz. 2007. An Introduction to Coping Theory and Research. In *Coping with Chronic Illness and Disability: Theoretical, Empirical, and Clinical Aspects*, Erin Martz and Hanoch Livneh (Eds.). Springer US, Boston, MA, 3–27. https://doi.org/10.1007/978-0-387-48670-3_1

[39] Andrés Lucero, Peter Dalsgaard, Kim Halskov, and Jacob Buur. 2016. Designing with Cards. In *Collaboration in Creative Design*, Panos Markopoulos, Jean-Bernard Martens, Julian Malins, Karin Coninx, and Aggelos Liapis (Eds.). Springer International Publishing, 75–95. https://doi.org/10.1007/978-3-319-29155-0_5

[40] María Lugones. 1987. Playfulness, "World"-Travelling, and Loving Perception. *Hypatia* 2, 2 (1987), 3–19. https://www.jstor.org/stable/3810013 Publisher: [Hypatia, Inc., Wiley].

[41] Keren MacLennan, Sarah O'Brien, and Teresa Tavassoli. 2022. In Our Own Words: The Complex Sensory Experiences of Autistic Adults. *Journal of Autism and Developmental Disorders* 52, 7 (2022), 3061–3075. https://doi.org/10.1007/s10803-021-05186-3

[42] Christian Maier, Sven Laumer, Christoph Weinert, and Tim Weitzel. 2015. The effects of technostress and switching stress on discontinued use of social networking services: a study of Facebook use. *Information Systems Journal* 25, 3 (2015), 275–308. https://doi.org/10.1111/isj.12068

[43] Alice E. Marwick and danah boyd. 2011. I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society* 13, 1 (2011), 114–133. https://doi.org/10.1177/1461444810365313

[44] Rachael Maun, Marc Fabri, and Pip Trevorrow. 2021. Adapting Participatory Design Activities for Autistic Adults: A Review. In *Design, User Experience, and Usability: Design for Diversity, Well-being, and Social Development. HCII 2021.* Lecture Notes in Computer Science, Vol. 12780. Springer, Cham., 300–314. https://doi.org/10.1007/978-3-030-78224-5_21

[45] Damian E.M. Milton. 2014. Autistic expertise: A critical reflection on the production of knowledge in autism studies. *Autism* 18, 7 (2014), 794–802. https://doi.org/10.1177/1362361314525281 Publisher: SAGE Publications Ltd.

[46] Melanie Muniandy, Amanda L. Richdale, Samuel R. C. Arnold, Julian N. Trollor, and Lauren P. Lawson. 2021. Factor structure and psychometric properties of the Brief COPE in autistic older adolescents and adults. *Research in Autism Spectrum Disorders* 84 (2021). https://doi.org/10.1016/j.rasd.2021.101764

[47] Melanie Muniandy, Amanda L. Richdale, Samuel R. C. Arnold, Julian N. Trollor, and Lauren P. Lawson. 2022. Associations between coping strategies and mental health outcomes in autistic adults. *Autism Research* 15, 5 (2022), 929–944. https://doi.org/10.1002/aur.2694

[48] Melanie Muniandy, Amanda L. Richdale, and Lauren P. Lawson. 2022. Coping-resilience profiles and experiences of stress in autistic adults. *Autism Research* 15, 11 (2022), 2149–2166. https://doi.org/10.1002/aur.2817

[49] Xinru Page, Andrew Capener, Spring Cullen, Tao Wang, Monica Garfield, and Pamela J. Wisniewski. 2022. Perceiving Affordances Differently: The Unintended Consequences When Young Autistic Adults Engage with Social Media. In *CHI Conference on Human Factors in Computing Systems.* ACM New York, NY. https://doi.org/10.1145/3491102.3517596

[50] Sarah Parsons, Nicola Yuill, Judith Good, Mark Brosnan, Lisa Austin, Clarence Singleton, Benoit Bossavit, and Barnabear. 2016. What Technology for Autism Needs to be Invented? Idea Generation from the Autism Community via the ASCmeI.T. App. In *Miesenberger K., Bühler C., Penaz P. (eds) Computers Helping People with Special Needs. ICCHP 2016.* Lecture Notes in Computer Science, Vol. 9759. Springer, Cham. https://doi.org/10.1007/978-3-319-41267-2_49

[51] Amon Rapp, Federica Cena, Claudio Mattutino, Guido Boella, Claudio Schifanella, Roberto Keller, and Stefania Brighenti. 2019. Designing an Urban Support for Autism. In *Proceedings of the 21st International Conference on Human-Computer Interaction with Mobile Devices and Services.* ACM New York, NY, USA, 1–6. https://doi.org/10.1145/3338286.3344390

[52] Ashley E Robertson and David R Simmons. 2015. The Sensory Experiences of Adults with Autism Spectrum Disorder: A Qualitative Analysis. *Perception* 44, 5 (2015), 569–586. https://doi.org/10.1068/p7833

[53] Samira A. Sariraei, Denis Chênevert, and Christian Vandenberghe. 2022. What Is on Your Gig Radar? Toward a Hierarchical Structure of Coping. *International Journal of Environmental Research and Public Health* 19, 21 (2022). https://doi.org/10.3390/ijerph192114219

[54] Iris Schneid and Aviad E. Raz. 2020. The mask of autism: Social camouflaging and impression management as coping/normalization from the perspectives of autistic adults. *Social Science & Medicine* 248 (2020), 112826. https://doi.org/10.1016/j.socscimed.2020.112826

[55] Will Simm, Maria Angela Ferrario, Adrian Gradinar, and Jon Whittle. 2014. Prototyping 'clasp': implications for designing digital technology for and with adults with autism. In *Proceedings of the 2014 conference on Designing interactive systems.* Association for Computing Machinery, New York, NY, USA, 345–354. https://doi.org/10.1145/

2598510.2600880

[56] Judy Singer. 1999. 'Why can't you be normal for once in your life?' From a 'problem with no name' to the emergence of a new category of difference. In *Disability Discourse* (mairian corker and sally french ed.). Open University Press, Buckingham - Philadelphia, 57–67.

[57] Ellen A. Skinner, Kathleen Edge, Jeffrey Altman, and Hayley Sherwood. 2003. Searching for the structure of coping: a review and critique of category systems for classifying ways of coping. *Psychological Bulletin* 129, 2 (2003), 216–269. https://doi.org/10.1037/0033-2909.129.2.216

[58] Katta Spiel, Christopher Frauenberger, Os Keyes, and Geraldine Fitzpatrick. 2019. Agency of Autistic Children in Technology Research—A Critical Literature Review. *ACM Transactions on Computer-Human Interaction* 26, 6 (2019), 38:1–38:40. https://doi.org/10.1145/3344919

[59] Anna Stenning. 2024. *Narrating the Many Autisms: Identity, Agency, Mattering*. Routledge, New York. https://doi.org/10.4324/9781003036807

[60] Frederic Stutzman and Woodrow Hartzog. 2012. Boundary regulation in social media. In *Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work (CSCW '12)*. Association for Computing Machinery, New York, NY, USA, 769–778. https://doi.org/10.1145/2145204.2145320

[61] Fred Stutzman and Jacob Kramer-Duffield. 2010. Friends only: examining a privacy-enhancing behavior in facebook. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '10)*. Association for Computing Machinery, New York, NY, USA, 1553–1562. https://doi.org/10.1145/1753326.1753559

[62] Monideepa Tarafdar, Christian Maier, Sven Laumer, and Tim Weitzel. 2019. Explaining the link between technostress and technology addiction for social networking sites: A study of distraction as a coping behavior. *Information Systems Journal* 30, 1 (2019), 96–124. https://doi.org/10.1111/isj.12253

[63] Martine Van Driel, John Vines, Belén Barros Pena, and Nelya Koteyko. 2023. Understanding Autistic Adults' Use of Social Media. *Proc. ACM Hum.-Comput. Interact.* 7, CSCW2 (2023), 257:1–257:23. https://doi.org/10.1145/3610048

[64] John Vines, Mark Blythe, Stephen Lindsay, Paul Dunphy, Andrew Monk, and Patrick Olivier. 2012. Questionable Concepts: Critique as a Resource for Designing with Eighty Somethings. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12)*. ACM New York, NY, USA, Austin, Texas, USA, 1169–1178. https://doi.org/10.1145/2207676.2208567

[65] Nick Walker. 2021. *Neuroqueer Heresies : Notes on the Neurodiversity Paradigm, Autistic Empowerment, and Postnormal Possibilities*. Autonomous Press, Fort Worth, TX.

[66] Pamela Wisniewski, Heather Lipford, and David Wilson. 2012. Fighting for my space: coping mechanisms for sns boundary regulation. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12)*. Association for Computing Machinery, New York, NY, USA, 609–618. https://doi.org/10.1145/2207676.2207761

[67] Jinan Zeidan, Eric Fombonne, Julie Scorah, Alaa Ibrahim, Maureen S. Durkin, Shekhar Saxena, Afiqah Yusuf, Andy Shih, and Mayada Elsabbagh. 2022. Global prevalence of autism: A systematic review update. *Autism Research: Official Journal of the International Society for Autism Research* 15, 5 (2022), 778–790. https://doi.org/10.1002/aur.2696

[68] Annuska Zolyomi, Andrew Begel, Jennifer Frances Waldern, John Tang, Michael Barnett, Edward Cutrell, Daniel McDuff, Sean Andrist, and Meredith Ringel Morris. 2019. Managing Stress: The Needs of Autistic Adults in Video Calling. *Proceedings of the ACM on Human-Computer Interaction* 3, CSCW (2019). https://doi.org/10.1145/3359236

[69] Annuska Zolyomi, Ridley Jones, and Tomer Kaftan. 2020. #ActuallyAutistic Sense-Making on Twitter. In *Proceedings of the 22nd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '20)*. Association for Computing Machinery, New York, NY, USA. https://doi.org/10.1145/3373625.3418001

A Participant features table

Table 1. Participant features mapped to coping strategies and social media stressors.

ID	P#	Title	Description	Coping strategy	Stressor
F1	P1	Having full control over what is public and private on your social media	Better and more granular control over what is public and what remains private on your profile and user-generated content. Emphasis on non-disclosure of autism and self-protection.	Audience management	Audience uncertainty

Table 1. *(Continued)* Participant features mapped to coping strategies and social media stressors.

ID	P#	Title	Description	Coping strategy	Stressor
F2	P1	Preview features	An audio preview that will read aloud your own posts before you send them. That way you can make sure they sound the way you intended. If they don't, you can edit them or delete them. Participant also mentioned a social media spell checker for dyslexia support.	Conflict avoidance Economising energy	Conveying / interpreting meaning
F3	P4	Activate stillness: calm and still viewing	A mode for your feed that allows you to remove all moving images and sound, leaving only static images and text. Would provide calmer viewing, and avoid being startled by unexpected moving images or sounds, particularly when wearing headphones.	Self-management	Sensory overload
F4	P4	Mental health protector/ Self-care timer	A self-care feature activating if you are spending too much time "doom scrolling" or looking at negative content. It would ask you whether you are OK, it would suggest an alternative activity, or would show some nice, fun content. It would include the option for users to set a timer after which the mental health protection would be triggered.	Self-management	Compulsion to use
F5	P5	Auto-delete user-generated content	Set a time interval after which all your user-generated content (posts, comments, replies, reactions, etc) would be deleted.	Audience management	Audience uncertainty
F6	P5	Restore and save a local copy of deleted content	An option to restore deleted content (e.g. enabled through a feature to download one's content), as a way to address the finality of deletion.	Withdrawal	-
F7	P5	Automatically remove non-genuine followers	A feature to weed out followers that do not seem genuinely interested in one's social media account and content. Would address the sense of unease about who's seeing one's content.	Conflict avoidance	Irrelevant / harmful content

Table 1. *(Continued)* Participant features mapped to coping strategies and social media stressors.

ID	P#	Title	Description	Coping strategy	Stressor
F8	P6	Blocking rudeness from strangers	Block inappropriate language and inappropriate images posted by people you don't know. It is OK to be playfully rude between friends, but participant did not wish to see that kind of content when posted by strangers.	Audience management	Audience uncertainty
F9	P6	Connecting people through common connections	A feature to highlight common connections between unconnected people, both within a platform and across platforms. Participant was dissatisfied with the quality of Facebook's friends recommendations, and observed that other platforms do not have this feature.	Audience management	Irrelevant / harmful content
F10	P6	Auto filter irrelevant and uninteresting content	Through a set of rules and keywords, dump all the uninteresting content into a holding area so that it doesn't clutter one's feed and can be deleted easily without having to block or upset the people posting it. Examples of content to be filtered included political views, and "pictures of people's food, cute kittens, their holidays, their children's first day at school".	Self-management Conflict avoidance	Irrelevant / harmful content
F11	P7	Remind me in ...	Ability to set up a reminder to take action on content (e.g. look at something in more detail or respond to something). Conceived as a way to better manage one's capacity and energy to engage, by deferring as needed.	Self-management	Sensory overload
F12	P7	What will this mean?	A way to assess the meaning of a written post when combined with different emojis and / or hashtags. The feature would help convey the right meaning, as well as supporting people's use of emojis and hashtags.	Explicitation	Conveying / interpreting meaning Expressing emotional intent

Table 1. *(Continued)* Participant features mapped to coping strategies and social media stressors.

ID	P#	Title	Description	Coping strategy	Stressor
F13	P7	Mute this type of content for [time period]	Temporarily remove certain types of content for a specified period of time. Examples of content to remove included "different views", "particular hashtags", "argumental" content or "everything from strangers". Aimed to better match content quantity and nature to one's personal capacity to handle it.	Withdrawal	Sensory overload
F14	P8	Improved emoji interpretation and use	An enhancement to predictive text to suggest more emojis. It would help clarify the meaning of emojis used by other people, and support visual communication.	Explicitation	Conveying / interpreting meaning Expressing emotional intent
F15	P8	Improved personal relationship management	Creating reminders to check-in online with certain individuals, and configuring automated messages to them. Conceived to ensure contacts don't get upset if one does not engage online with them on a regular basis.	Self-management Economising energy	Sensory overload
F16	P8	Help understanding how others will interpret my words	An interpreter for one's user-generated content. Would indicate how others are likely to understand and interpret one's own words. Intended to avoid "inadvertently offending people".	Conflict avoidance	Conveying / interpreting meaning
F17	P12	Crowdsourced interpreter	A feature to share content drafts with trusted others, to get a second opinion about their meaning and how they may be interpreted. It can be used before or after publishing, and also for content generated by others. It would include a function to recall posts, and to edit and resend them.	Learning from / with others	Conveying / interpreting meaning

Table 1. *(Continued)* Participant features mapped to coping strategies and social media stressors.

ID	P#	Title	Description	Coping strategy	Stressor
F18	P12	Replacing emojis with personalised images	A function to replace emojis with a personalised, alternative image that better conveys the meaning of the emoji for a particular user. It includes a function to filter out incomprehensible emojis, to avoid viewing content that one cannot interpret.	Explicitation	Expressing emotional intent
F19	P12	Interests-based connection recommenda-tions	A feature that would allow you to search by interest, to find other people who share those interests, and would recommend connections based on common interests. If several people get connected through a common interest, it can provide the option to create a group. It would include a multi-modal search feature that would return not just text, but also sounds and images.	Audience management	Underserved interest-led sociality
F20	P13	Controlled connectivity	A set of 3 features about increasing one's control over social media engagement. 1) A utility to schedule posts and direct messages, so that you can compose them in advance but send them at a later time; 2) An edit and resend function, particularly for hashtags when you have used them inappropriately, but also for spelling mistakes; and 3) A prompt to remind oneself about unread content or content that has not been replied to. These reminders could be turned on and off.	Self-management Economising energy	Sensory overload Conveying / interpreting meaning

Table 1. *(Continued)* Participant features mapped to coping strategies and social media stressors.

ID	P#	Title	Description	Coping strategy	Stressor
F21	P13	Enhanced accessibility	Some suggestions to improve the accessibility of social media platforms, including: 1) a read-aloud feature and the ability to interact with content visually; 2) a way of connecting users of accessibility features to each other; 3) a way of connecting users of accessibility features to people who would like to support them; 4) an accessibility preview for one's posts to ensure they are accessible.	-	Sensory overload Underserved interest-led sociality
F22	P13	Customisable emojis and badges	A utility to design and create your own badges and emojis, which could then be shared and repurposed by other people. Includes a way to create personalised collections of emojis and badges. Intended to enable a more personalised visual self-presentation on social media.	Explicitation	Sensory overload Expressing emotional intent
F23	P14	Find out about people before accepting them as a new connection	Ability to learn more about the sender of a connection request (e.g. provide a summary of their political views and their position on certain subjects determined by the recipient; ability to search their content, even if not public; information about their geographic location and mutual connections).	Audience management	Audience uncertainty
F24	P14	Remind me: my to-do list	Configure reminders for certain content and actions, in order to generate a to-do list one can tackle when time allows (e.g. "remind me to look at this friend request, or this post, or reply to this direct message, or look at this visual content or this video when actually there's time to do it"). A way to manage the speed at which content flows on social media, and the implied need to react immediately.	Self-management	Sensory overload

Table 1. *(Continued)* Participant features mapped to coping strategies and social media stressors.

ID	P#	Title	Description	Coping strategy	Stressor
F25	P14	Personalised feed	Ability to override the platform algorithm and create a personalised feed that excludes content one is not interested in (e.g. advertisements, videos or content from strangers). Sort one's feed by relevance. Also, provide a finite feed, rather than an infinite one.	Self-management	Irrelevant / harmful content Sensory overload
F26	P16	Interest-based people search	Ability to search for and connect with people one doesn't know but who share the same interests.	Audience management	Underserved interest-led sociality
F27	P16	Choose who sees what I post easily	Ability to determine who sees the content one posts really easily: "I know Facebook provides this feature, but I can't work it. It's too wordy and has too many options".	Audience management	Audience uncertainty
F28	P16	Views checked prior to connection	Ability to find out people's views on certain topics before connecting with or following them, using the content they have posted in the past. A way to minimise the amount of hateful content in one's feed; and to ensure one doesn't amplify the voices of toxic users.	Audience management Conflict avoidance	Audience uncertainty Irrelevant/ harmful content
F29	P17	Out of office for social media	Ability to see people's replies to one's posts at a time that is convenient, rather than whenever they happen to arrive. "Say (...) I'll post something or I respond to somebody, and I'm not in the right mental frame straight off to receive all the replies. Then it would be quite nice to put a delay on it." The feature should notify others that one has set a delay, like an "out of office" message for social media. A way to manage one's ability to engage with social media, and the nagging feeling that drives one to check it constantly.	Withdrawal	Compulsion to use

Table 1. *(Continued)* Participant features mapped to coping strategies and social media stressors.

ID	P#	Title	Description	Coping strategy	Stressor
F30	P17	Latest content from strangers	Ability to view someone's latest posts (e.g. their 10 latest ones), reactions and comments they received, as a way to assess whether one should engage with them on social media.	Audience management	Audience uncertainty
F31	P18	Set social media goals and objectives	Ability to set goals for social media use and to be reminded about them with a frequency one configures. Sparked by the goal of spending as little time as possible on social media. Other goal examples could be, "if you are engaging in arguments / debates, delaying the replies to give yourself more time"; muting certain types of information or topics after a certain amount of time.	Self-management	Compulsion to use
F32	P18	Increased transparency and meaningful user involvement	A set of 3 features to improve transparency and accountability of social media platforms. 1) Clear and multimodal explanations of all platform changes, including a point of contact for questions; 2) Real opportunities for users to provide feedback and get involved in the design of the platform; and 3) Clear and honest information about data ownership and profitability from it.	-	-
F33	P19	Autoposting	A "reservoir" of content to be posted automatically at regular intervals. The goal is to minimise the effort involved in posting regularly.	Self-management Economising energy	Sensory overload
F34	P19	"Ramlight": The random spotlight	Flash and serendipitous promotion of interest-based content. Would come up as part of results when searching for a specific topic or subject.	-	Underserved interest-led sociality
F35	P19	Don't be a dick - Win prizes	Gamifying good behaviour on social media.	Conflict avoidance	Irrelevant / harmful content

Table 1. *(Continued)* Participant features mapped to coping strategies and social media stressors.

ID	P#	Title	Description	Coping strategy	Stressor
F36	P20	Assistance with emoji use	A set of 3 features to provide help with using emojis. 1) Explain their meaning; 2) Create simplified, custom lists of emojis; 3) Hide emojis in posts.	Explicitation	Expressing emotional intent Conveying / interpreting meaning
F37	P20	Viewpoint explainer	A translator or interpreter that would clarify whether someone is being rude or purely expressing an alternative viewpoint. To be used before posting a reply.	Conflict avoidance	Conveying / interpreting meaning
F38	P20	Repost / retweet filter	A feature to keep one's timeline free from content created by strangers. It works by filtering out reposts and boosts from one's connections.	Self-management	Irrelevant / harmful content