"Why did we lose our snapchat streak?". Social media gamification and metacommunication

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ABSTRACT

As social media becomes one principal mediator of human interaction around the globe, its features such as gamification both enable and shape user behavior (e.g. enhancing habit formation), communication and relationships. In order to contribute to the understanding of social media and the impact of its gamified features, we conducted in-depth praxeological interviews with high school pupils (aged 14–18, N = 25) which revealed youth's reliance on gamification-related metacommunication. Metacommunication - communication about communication - both illustrates the interplay between gamification and relationships and helps users manage it. More specifically, this paper examines verbal metacommunication revolving around Snapchat Streaks – a highly popular gamified feature that quantifies subsequent days of exchanging snaps (pictures or videos) on the app. Using data from the interviews, we lay out metacommunication connected to the main phases of adolescents' streak practice: initiating a streak, maintaining it and losing it. We discuss how youths metacommunicate: 1) to mitigate potential adverse effects of gamification on their relationships; 2) as a support to their gamification "gameplay". Ultimately, we use the example of streaks-related metacommunication to discuss how the ever-growing gamification of social media affects interaction and relationships.

1. Introduction

Nowadays, social media has become a major mediator of human interaction worldwide which facilitates and impacts communication through its features and functionalities. This is exemplified by cases such as algorithms stealthily altering the perception of closeness between users (Eslami, 2015), adolescents being strongly influenced by the *Facebook likes* they get from peers (Crone & Konijin, 2018) or Snapchat's *Best Friends* feature promoting a sense of jealousy among users (Vaterlaus, Barnett, Roche, & Young, 2016). In fact, Facebook Likes and Snapchat's Best Friends are among the plethora of gamification features - game elements used in non-game contexts (Deterding et al., 2011) - utilized by social media platforms nowadays to engage users and to nudge interaction (Lampe, 2014; Pellikka, 2014). Through adding challenges, constraints or rewarding actions (Hamari et al., 2014), gamification impacts user behavior, communication and relationships in ways desirable for the creators of social media. According to Lampe, both gamification and social media "combine social and technical architectures to shape and enable user practice" (Lampe, 2014) weaving complex patterns of actions and interactions. Within the SNS context, common goals for the use of gamification are to prompt users to spend more time with digital products, to generate more content (ibid.) and, through their social connections, to encourage other users to do so, too.

A prominent example of a gamification element which gained vast popularity and conspicuously shaped user agency and interaction, especially among adolescents, are *Snapchat Streaks.* The gamification element marks how many days in a row two users have been exchanging snaps (self-made pictures or videos). The feature nudges users to snap at least once each 24 h with their streak partners and further has inspired a range of techniques among users to keep up these streaks successfully, documented in our previous work (reference to be included). The motivations for keeping a streak may vary. For instance, a streak can be built up: as a personal highscore – a record of one's highest achievement in the challenge of keeping streaks or as a token of social status in the community of practice (Hristova & Lieberoth, 2021); as a symbol of companionship (e.g., a friendship or a romantic relationship); or for the

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sheer pleasure of the daily reciprocity facilitated by the streak.

Given the variety of motivational factors for keeping a streak, for many, maximizing their streak score has become a pivotal goal (Hristova & Lieberoth, 2021). However, since Snapchat Streaks are a relational score, this goal can only be met if both partners cooperate daily over extended periods of time. Potentially, this particular characteristic of streaks - prolonged gameplay and required cooperation on behalf of both partners - might impact relationships and presupposes that users rely on metacommunication to coordinate Streak-related actions or to negotiate unfolding relationships. We have selected Snapchat Streaks for our analysis of social media gamification's impact: 1) as our interviews indicated their importance within the peer communities of our adolescent informants; 2) due to their prominence among adolescent Snapchat users; 3) due to their behavioral modification qualities and impact on communication.

Our data revealed that the way these relationships are modulated or managed can become visible in adolescents' metacommunication - defined as "communication about communication" (Ruesch & Bateson, 1951) - regarding streaks. For example, youths reported meta-communicating at key moments of the gamified exchange such as pre- or post-streak loss when it is crucial to clarify its implication for the relationship between partners. Metacommunicative exchange is generally important for understanding "messages within relationship systems" (Castor, 2017) which, in the case of Snapchat Streaks, also extends to gamification-mediated interaction. Metacommunication revolves around topics that are relevant to users such as coordinating actions with a "game" partner and clarifying a situation or the relationship between users. In order to advance our understanding of the entanglement between gamified design and social interactions inspired by streaks, analyzing the functions of metacommunication appears as a useful lens. Doing so is particularly important among adolescents reliant on peer feedback as "for teen social media users, even seemingly mundane networked experiences may exert meaningful influences on well-being" (Weinstein, 2017, p. 7).

In order to get a glimpse into the impact of social media gamification on interaction, we investigate the metacommunication unfolding around gamified communication on social media: its form, topics and functions. In this paper, drawing on the data from semi-structured praxeological interviews with Austrian adolescents, we examine the following research questions (RQ): RQ1) In what form do adolescents metacommunicate with regard to streaks? RQ2) What topics and functions do their metacommunication have? RQ3) What is the role of metacommunication for adolescents' involvement with the gamification element Snapchat Streaks? For this purpose, we first outline a working definition of metacommunication and introduce the gamification element Snapchat Streaks; we then present our methods and empirical data compound of various instances of metacommunication. Lastly, we discuss them with regard to the gamification domain and related practices such as metagaming - alternative practices aiding users to successfully keep or rescue a steak.

2. Theoretical background

2.1. Social media gamification and Snapchat Streaks

Gamification marks a new step in the evolution of social media as it provides the means to add challenges, constraints or rewards in addition to the platform's core loop (Elias et al., 2012) - the main activity enabled by the app. Through different gamification elements - which can be added, modified or removed - social media designers can alter or reframe behaviors and interactions selectively (Hristova & Lieberoth, 2021). Thereby the gamification element provides a *frame* (Goffman, 1974; Castor, 2017) rendering a specific context to the interaction between pairs of users. Streaks gamify the very core loop of Snapchat which is exchanging snaps (Hristova et al., 2020) by adding a time constraint on reciprocity. Taking a biographical approach to social

media platforms (Burgess & Baym, 2020), we note that Streaks mark a key developmental change in Snapchat's biography as they reconceptualize snapping from interest-driven interaction to a form of "gameplay".

In this paper, we regard Streaks as a game-based interaction, while acknowledging that their primary function is gamification and not to act as a full-fledged game. With regard to the formal definition of games by Fullerton (2014), however, Snapchat Streaks feature many elements attributed to games, such as objectives, rules, resources and outcomes ("winning"). Furthermore, previous empirical work (Hristova et al., 2020) suggests that adolescents treat streaks as a game as they alter their behavior to follow Streaks' rules (they are mindful to snap at least once every 24 h), but they also try to optimize their "gameplay" through sending so-called streak snaps (e.g. black pictures with no content, which are sent just to keep the streak) (ibid.). Beyond individual users and pairs of users, communities of practice develop, which additionally reinforce the hype introduced by the simple gamification mechanics. Hence, Snapchat's gamification element Streaks offers a thriving domain for studying the impact of computers and related technology on human behavior and interaction.

2.2. Metacommunication & metagaming

While we acknowledge the long-standing tradition of viewing play as a metacommunicative frame (Bateson, 1955), little attention has been given to metacommunicative acts *within* the frame of gamified social media. As noted by Lanamaki & Paivarinta, "the field of studying computer-mediated metacommunication seems still to be in its infancy" (2009, p. 237). Metacommunication has merely been mentioned *en passant* in gamification literature (e.g., Thibault, 2019). Gamification scholars commonly refer to Bateson's work (1955) to describe that *metacommunicative frames,* conveying the message "this is play", help gamification users interpret interaction episodes. Neitzel summarizes games and play "as an autonomous sphere of human and animal behavior which differs from nonplay by the feature of metacommunication" (2007, p. 237).

We regard metacommunication as a second-order communication (Bateson, 1955; Mateus, 2017) - a level accompanying but distinct from "the codified" (Bochner & Lenk Krueger, 1979) or the "content" (Bateson, 1955; Watzlawick et al., 1967). While metacommunication can manifest as verbal and non-verbal messages (Wilmot, 1980), in this paper we solely focus on verbal streak-related utterances. These messages can be prospective (e.g. prospectively warning about future events), current or retrospective (Tanskanen, 2007) with regard to their temporal reference. In terms of function, metacommunication may, for example, clarify how a communication episode should be understood (Bochner & Lenk Krueger, 1979; Mateus, 2017) or comment on the relationship between the communicators (Bateson, 1955; Watzlawick et al., 1967; Craig, 2016). To account for these functions, we follow Wilmot's distinction (1980) between episodic and relational metacommunication levels, focusing on clarifying situations and relationships, respectively. More specifically, we seek to address user-focused praxeological questions such as: what type of metacommunication is prompted when engaging with a particular gamification element; what characteristics of the gamification element (e.g.: temporal, technological and social requirements) shape gamification-related metacommunication.

In the context of gaming, metacommunication (e.g., in the form of calling or chatting) can support cooperative gameplay (Neitzel, 2007) in ways which can be described as metagaming. (Garfield, 2000; Boluk & LeMieux, 2017). In this paper, metagaming will be operationalized as "re-thinking and tweaking predesigned affordances, challenging them or opening new ones" (Hristova et al., 2020) for the purpose of achieving a desired gamification goal. Within the context of streaks, metagaming describes practices such as sending *streak snaps* - snaps with reduced content sent "just for the streak" (ibid.), hence achieving longer streaks

with less daily effort. There is only a partial intersection between metacommunication, metagaming and gamification. Metacommunication may assist gamified communication per se, but it can also serve alternative purposes such as the clarification of technical issues (Lanamaki & Paivarinta, 2009). Similarly, metagaming and gamification can also encompass practices that do not rely on communication as in the case of mechanical metagaming that occurs "when engaging directly with the game systems, mechanics, and processes" individually (Lickteig, 2020, p. 2).

3. Methods

3.1. Design

We conducted two series of semi-structured interviews (N = 25) at three Austrian high schools in 2018 and 2019 as a part of a research project on adolescents' use of social media. The data discussed in this paper has been generated during two iterative cycles of data acquisition (DA1 & DA2) with a strong praxeological focus, based on grounded theory principles (Glaser & Strauss, 1967; Clarke, 2005). The praxeological approach allowed for the reconstruction of everyday concepts and practices in their inherent logic (Bohnsack, 2009) and the semi-structured format accommodated eliciting "views of the person's subjective world" (Charmaz, 2006, p. 29).

The first data acquisition (DA1, n = 14) featured broad inquiries such as "Which social media platforms are you using?" or "On a regular day, what do you do on social media?", complemented by in-depth questions zooming into adolescents' practices. The collected data indicated Snapchat Streaks' popularity which inspired a strong praxeological focus on adolescents' use of Snapchat and Streaks in the second data acquisition (DA2, n = 11): "Describe your experience with Streaks" and "Describe what you usually do on Snapchat". Further in-depth questions unveiled procedural details, social contextualization and rationales behind streak-related practices. Among the 25 participants, the ones who themselves had not kept Streaks, were aware of them and reported their observations of peers' streak practice or shared whether they themselves had particular reasons not to keep streaks.

3.2. Participants recruitment & procedure

The inclusion criteria for participants were: to be aged 14–18, German speaking (native or full fluency); for DA1: to use social media; for DA2: to have experience with Snapchat. Altogether, 25 adolescents (mean age = 15,44; female = 13, male = 12) who met the inclusion criteria and delivered a signed consent form were admitted to participation in the study. The adolescents, recruited through teachers, volunteered to give an interview (50–90 min, mean length = 79,32) about their daily social media practice and experience. The consent form signed by a parent, a guardian - or in case the participants were older than 16 - by themselves, was collected prior to participation. Individual participants were invited to a separate school room during class, with their teacher's permission.

3.3. Data analysis

The audio recordings of all 25 interviews (DA1 & DA2) were transcribed using f4 and Konch software, and the data was anonymized. The transcripts were then coded and analyzed in Atlas.ti following a modified grounded theory approach (Chun Tie et al., 2019). The bottom-up initial coding (ibid.) of the data served the purpose of building practices which we subsumed under the broad category of metacommunication. At an intermediate coding level (ibid.), this cluster allowed us to identify individual metacommunicative practices related to Snapchat Streaks as the basis for iterative thematic grouping. Subsequently, the emerging metacommunication cluster of user practices was used for advanced coding (ibid.). The main subcategories of

metacommunication identified across participants and their respective representative utterances are discussed in this paper with regard to theoretical frameworks of metacommunication and to their relation to gamification. For this publication, relevant segments from the 25 interviews, which were originally conducted in German, were translated to English. The quotes were selected to exemplify trends in the data, consequently quotations have been selected on the basis of their relevance to the topic of metacommunication unfolding around streaks, and not to fully represent all 25 interviews. Informants' names are replaced by pseudonyms marked in italics *(e.g. Will, Tim, Nina)* and the respective informant's age will be noted at their first mention.

4. Results

Table 1 provides an overview of the reported metacommunicative acts organized according to the streak phase they unfold in: 1) initiation, 2) maintenance and 3) streak loss. For each practice, we describe its: a) type - episodic or relational; retrospective, current or prospective; b) theme and function; c) relation to gamification and metagaming.

4.1. Initiating a streak

Explicitly inviting someone to keep streaks is a common metacommunicative act occurring during the phase of streak initiation. The invitation can be sent to one person *(Richard, aged 16)* or be posted via Snapchat's Story function as an open invitation *(Nina, 15)* to all contacts. A streak invitation is a tacit attempt to renegotiate the relationship between youths prospectively as it implies becoming partners in a shared long-term project. However, gamifying one's interaction is not desirable for everyone. For example, *Petra (17)* rejected an invitation as she generally did not wish to keep streaks which irritated her friend who then asked "why don't you want to keep streaks with me?" - indicating that she felt rejected on a personal level. This interaction alludes to the different importance that can be ascribed to a streak invitation and, as the case may be - to its rejection. Another informant, *Viola (15),* faked the same excuse to reject the invite of a particular person. *Viola* lied that she does not keep streaks with anyone in order to avoid potential conflict as the truth was likely to be taken as a personal offence.

An alternative, less personal way of inviting people to keep streaks is to post an open invitation on one's story - where (commonly inscribed) pictures are visible to all contacts for 24 h. Anyone can then start building a streak with the one who posts: "Streaks?", "Does anyone want to build up streaks?" or "Who wants to build up streaks?" *(Petra, Nina)*. According to *Petra*, it does not matter if one knows the person or not because people broadcast the invitation just because they "find it cool to have streaks with more people". She perceives such impersonal invitations as pointless as they aim just to build streaks with more people - the statement hinting at the impact of gamification on adolescents' communication. Mass streak invitations, we argue, can also be described as a metagaming strategy as they aim to maximize a gamification-related score.

4.2. Maintaining a streak

In this subsection, we will outline a spectrum of metacommunicative practices accompanying streak maintenance: from labeling streak snaps, to attempts to save the streak, such as reminding one's partner to snap or asking friends to keep one's streak.

4.2.1. Labeling streak snaps

Our informants report using so-called streak snaps - impersonal snaps with reduced content sent for the purpose of maintaining a streak (Hristova et al., 2020). Streak snaps that are sent daily, commonly to multiple others ("mass snap"), can be black pictures (ornamented or blank) or images of the user's mundane surroundings - one's shoes, food, the bus, etc. Within the frame of Streaks, an otherwise meaningless snap

Table 1
Metacommunicative acts: type, function and relation to gamification and metagaming.

Metacommunicative act	Metacommunication type	Theme & function	Relation to gamification and metagaming
I. Initiating a streak			
Inviting someone to keep streaks together	- relational (implicit) - prospective	- invites to start a shared project, thus becoming streak partners	- seeks an agreement to interact through gamification - can be used as metagaming (increasing the number of people one has streaks with)
II. Maintaining a streak			
Labeling a streak snap	- episodic (implicitly relational) - current	- contextualizes the snap - labels a "streak snap" as distinct from a conversational snap	- labels a snap as a gamification-focused meta-gaming token
Celebrating streak milestone	- episodic (implicitly relational) - retrospective	- notes a gamification achievement - praises a relationship and a shared success	- celebrates a gamification milestone - not metagaming
Reminding partner to snap	- episodic - prospective (invites near- future actions)	- calls for an immediate action to rescue a streak	- nudges partner to follow the rules of gamification - metagaming aiming to prevent a "game over"
Giving password away	- episodic - prospective (invites near- future actions)	- coordinates actions to prevent streak loss	- gamification focus - metagaming aiming to prevent a "game over"
III. Losing a streak			
Warning about upcoming streak loss	- episodic (implicitly relational) - prospective (explains an anticipated future situation)	- preemptively signals about a streak loss, thereby attempting to prevent conflict	- prevents the potential negative impact of break in gamified communication - not metagaming
Give/require explanations about streak loss	- episodic (implicitly relational) - retrospective	- mitigates harm on the relationship that streak loss might have caused - stabilizes a relationship	- prevents the negative impact of break in gamified communication - not metagaming
Restart a streak	- relational - prospective (invites future actions)	- mitigates harm on the relationship that streak loss might have caused - continues a relationship	- prevents the negative impact of break in gamified communication - not metagaming
Contact Snapchat to restore a streak	- episodic - retrospective (aims to reverse the loss that has occurred)	- aims at restoring a lost streak score through communicating to the service provider	- potential gamification focus - metagaming reversing a "game over"

of one's shoes is interpreted as an expected element of the daily practice of keeping streaks established between the two users *(Zoe, 15)*. In order to avoid confusion between conversational or gamification-focused snaps, some of our informants make this contextualization explicit by writing "streak" *(Phil, Richard)* or "mass snap" *(Kira, 16)* on their snaps. Informants share that they do not want their streak partners to think that they are sending them "some weird snaps" *(Phil, 15)*. Hence, the act of labeling is motivated by a wish to prevent a potentially negative impact of gamified exchange on their relations with others.

Another, more ubiquitous, type of labeling is found on "Good night" or "Good morning" streak snaps inscribed with variations of the respective text, which serves simultaneously as a label of the snap type and as a customary greeting on Snapchat. However, despite this labeling, the snaps may still be perceived as ambiguous by the receiver. *Viola* shared that a streak partner once asked whether the "Good Night" snap she sent him was personal thereby addressing the ambiguity of the snap, but also attempting to renegotiate their relationship. Sensing this, *Viola* answered that it was a mass snap, thereby reaffirming the non-personal status quo of their relationship. In the interview, she also commented that "he wouldn't have asked if he didn't want the snap to be personal". In other words, his metacommunication signals that he wished for the relationship to become more personal - an invite which was turned down by *Viola*. In this case, the metacommunication between the two streak partners was aimed at the renegotiation, and subsequently - reaffirmation, of their relationship.

4.2.2. Celebrating streak milestones

Celebrating milestones such as 100 streaks - snapping 100 days in a row with one person - is crucial for some adolescents who share posting about such achievements to their story *(Tim, 15; Will, 15)* or writing to their streak partner *(Kira)*. *Kira* remembers being very happy when reaching 600 streaks, which led her to exclaim to her streak partner: "Yaaay! We have 600 streaks!". While this retrospective comment does not facilitate the building up of the streak, it celebrates the episode of having reached a gamification milestone together and implicitly - the users' relationship and shared project. Celebrating can also be practiced

publicly e.g. on one's story *(Viola, Will)*, for example by tagging one's streak partner and writing "@name + we cracked 300 streaks" *(Will)*. However, some of our informants see such publicity as "unnecessary" (literally: unnecessary; slang, meaning "uncool") *(Nina)* and as bragging. It is noteworthy that within our sample, participants, whether passionate about streaks or not, knew the approximate number of their peers' highest streak scores. This suggests that while this sort of meta-communication does not have an impact on streaks' "gameplay", it potentially boosts one's social status within local communities of practice *(Chris, 15; Helen, 15)*.

4.2.3. Reminding partner to snap in order to rescue a streak

Sending snaps for the streak is an iterative process that requires users to remember to snap daily. While snapping once a day is a sufficiently simple task, in the long run, our participants report forgetting or almost forgetting to snap on many occasions. When the streak is about to be lost in 4 h, Snapchat displays an hourglass emoji next to the partner's name as a reminder that they need to snap again in order to keep the streak. While this gamification mechanism can nudge users, our informants also actively remind their partners to snap - a practice commonly applied if a long streak is endangered *(Petra)*. In other words, prospective episodic metacommunication is used to prompt near-term actions in order to save the streak. Adolescents send messages (either on Snapchat or WhatsApp) or even call a streak partner to remind them to fulfill their role as an ally in the game (Neitzel, 2007) of keeping streaks. *Viola* and *Kira*, for example, would write "Come on! What's wrong with you? Snap!" to their partner, and *Sophie (17)*: "we have an hourglass!".

In the case of streaks, the metacommunicative act (a reminder) can directly rescue a streak, which points to its crucial metagaming function - aiming to prevent a "game over" and to thereby prolong users' uninterrupted involvement with the gamification element. However, should these metagaming attempts fail (at first or in general), adolescents share that they feel frustrated: *Phil & Mike (14)*, for example, would start spamming their streak partner with the message "Hourglasshourglass-shourglass!" to make them snap. *Phil* shares being irritated, which he describes as a "as-if-emotion" triggered, by his friend's inaction, as

described by *Phil*: "just sitting at home, away from his phone" and not snapping while *Phil* is sending him reminders "all the time" to prevent streak loss.

4.2.4. Giving password away to keep streaks

A further case where metacommunication is applied *as* metagaming is, when anticipating streak loss (e.g. while on vacation), to give one's password away to a friend and ask them to continue the streak (Déage, 2019). Upon receiving access to the account, this friend keeps the gamified exchange going by sending impersonal streak snaps to one, multiple or all streak partners *(Petra, Nicole)*, depending on the original instruction. However, in practice, a combination of several meta-communicative actions to multiple others is needed for successful implementation: *Nicole (18)* used prospective episodic meta-communication - explained the situation (expected to lose her streaks while on vacation) to a friend, asked them for help and gave her pass-word away. However, *Nicole* forgot to metacommunicate to her streak partners that someone else will be snapping instead of her in the coming weeks, so for a while they did not know it was not her who was sending the streak snaps. At some point they became suspicious because she was away on another continent but kept sending photos from the same house - an issue which they later addressed. *Nicole* regrets not telling her other steak partners that she gave her password away, but she had forgotten to do so. In this case, additional episodic metacommunication for relational purposes would have been needed in addition to the meta-communication used to metagaming ends. Indeed, instructing someone to send streak snaps was a successful metagaming act as it prevented a "game over", but the lack of metacommunication explaining the situation to the other streak partners potentially endangered relationships.

It is noteworthy that the gamification framework led users to share their password and to delegate their Snapchat communication to another person for gamification purposes. Yet, the aforementioned lack of metacommunication - not informing friends that they will be snapping with someone else - created an unintended impersonation, i.a. a situation in which a person communicates in the guise of another person's online identity. Impersonation (e.g. through hacking one's account or creating one under a false name) afforded by digital media has been reported as a common stressor among adolescents (Weinstein & Selman, 2016). However, the gamification framing of the communication moti-vated the act of willing social media identity lending which may be indicative of: the trust one puts in their friend to become the warden of her Snapchat communication and streaks projects; of one expecting impersonal snaps to be exchanged for maintaining the streak. Never-theless, despite the purpose of the impersonation not being malevolent, the lack of metacommunication could still have detrimental effects on the relationship between friends keeping a streak together, as exempli-fied by Nicole's case.

4.3. Losing a streak

A variety of streak-related metacommunicative practices is con-nected to streak loss, such as warning, giving or requiring an explana-tion, restarting or restoring a streak.

4.3.1. Warning

Our informants mention warning their streak partners that they may not be able to snap, e.g.: as one is going on vacation with no internet *(Brian, 15)* or as one stops keeping streaks altogether *(Richard)*. This preemptive metacommunicative damage control can both be practiced and expected: *Helen* says she would be "pissed off" if her streak partner had not warned her about streak loss. Owing to the warning, she knew why there was no answer which, she notes, "is better than all of the sudden being ignored". In contrast, *Will* felt that he "couldn't be both-ered anymore" so he dropped streaks with all of his 25 streak partners without any warning. However, warning is commonly selective: for example, *Richard* chose to warn a few of his closer streak partners

personally, while he just stopped snapping without warning others. Instead of notifying people personally, one alternative with a wider public outreach is to post on Snapchat story "I stop keeping streaks with everyone" *(Nina)*. While this public metacommunication reaches everyone simultaneously, it is not necessarily viewed in high esteem, as for instance, *Nicole* perceived people doing that as overly dramatic and attempting to attract attention to oneself.

Similar to giving one's password away to prevent streak loss, warnings can be described as *prospective* metacommunication (Tanska-nen, 2007) in the face of a potentially adverse change in communication (upon streak loss). However, in contrast to the password example, warning does not serve a metagaming purpose - it does not alter the de-facto "win" or "lose" outcome, but it instead caters for relationship needs.

4.3.2. Give or require an explanation about streak loss

Upon the specific episode of streak loss, adolescents retrospectively metacommunicate in order to mitigate potential damage to their re-lationships. For instance, they may: make an observation "yup, we don't have streaks anymore" *(Lilly, 15)*; get upset "oh my god! How did we lose them?! That is so sad" *(Brian's girlfriend)*; complain that rebuilding the streak would "take ages" *(Zoe)*; make an ironic remark "yeah, great, we have lost" *(Phil)*; or bond over the streak loss *(Mia, 16)*. Reactions and their intensity differed among our informants, who commonly re-ported that streaks are more important to others than to themselves *(Brian, Eve, Tim, Will)*. According to one of our male informants, streaks are allegedly more important for girls who metacommunicate irritably when a streak is lost: "Girls write 'Hey! Why?' when one loses streaks with them. It's not 'angry' but it is 'negative', to put it mildly" *(Tim)*.

Conversely, adolescents may also require an explanation or even blame their streak partner: "Why didn't you send me anything?" *(Mike)*, "Why didn't you snap before? Now we lost our 300 streaks!" *(Kira)*. As previously mentioned, one excuse perceived as valid is having no internet, e.g.: while on vacation *(Will, Nicole)*. *Lilly* says that she usually does not give these excuses because her friends already know where she is but recalls explaining "I am sorry, I forgot my phone" on one occasion. Further valid excuses may include: falling asleep (and forgetting to snap beforehand) *(Phil)*, stopping to keep streaks with everyone *(Will)* or with a less close fraction of one's contacts *(Nicole's friend Betty)*. For example, in an attempt to clarify whether the loss of their streak was personal, *Nicole* asked *Betty (17)* "Did you break streaks with everyone?". *Betty* answered that she is limiting streaks to just a few close friends – thereby clarifying that losing was not due to a conflict while also implicitly indicating that *Nicole* is not among her close friends. Alternatively, *Petra* used the streak loss as an occasion to tell her friend that losing was not personal because *Petra* herself is just not good at keeping streaks.

Last but not least, explanations of streak loss can also be a mere fake. According to *Phil*, peers may say that "it's just streaks" and that the loss will not harm their friendship but then they may break contact never-theless. Moreover, *Mike* once broke a streak intentionally but lied that it happened accidently. Upon breaking the streak with the partner who was spamming him, *Mike* faked the acceptable excuse that he just did not have Internet access, but then stopped answering altogether.

All these instances of explanations point to adolescents trying to manage relationships after losing at Streaks' gamification challenge. Such retrospective explanations were used for purely relational purposes and not for metagaming - as they do not help users to be more successful at keeping streaks.

4.3.3. Restart a streak

A common way to mitigate the impact of streak loss on the rela-tionship is to invite one's partner to restart streaks. In this manner, youths use prospective metacommunication to call for actions making sure that the relationship will be preserved – also signaling that the streak loss should not be interpreted as intentional or as an attempt to reduce communication. More specifically, the decision to restart the

streak can be reached in different ways: through a congenial or antagonistic exchange. *Phil* and *Nina* asked their respective partner "are we gonna start with streaks again?" and then discussed the idea together. However, streak loss can also be associated with controversy. For example, *Phil* was once scolded for causing a streak loss so he countered his partner's anger with an offer to restart the streak: "It doesn't matter. Let's start anew! It's gonna be fine" *(Phil)*. Such an invitation can aim at pacifying partner's anger and at continuing the relationship despite the disturbance. As exemplified, an invitation to restart a streak serves primarily relationship maintenance, rather than gamification or metagaming purposes.

4.3.4. Restore a streak

A final resort upon losing a streak is to use a retrospective metacommunication to restore it. It entails getting in touch with Snapchat, filling out a form and delivering one of few valid explanations for losing, such as that the streak got interrupted due to technical issues, e.g.: connectivity problems *(Sophie)* or app malfunction *(Will)*. Such initiative should be carried out by both streak partners *(Sophie)* which requires coordination among them to achieve set goal - restoring the streak. *Sophie* once had a streak restored because she explained that it is very important for her as she has successfully kept it for 600 days already which has cost her a lot of effort. Among our informants, *Petra* has heard friends bragging about having restored streaks successfully, and *Sophie* and *Will* have contacted the provider themselves and their request has been approved. This type of metacommunication with Snapchat as a gamemaster can be seen as an act of metagaming attempting to reverse a "game over" through reaching out to the service provider. Investing effort to restore a streak hints at the importance of the score. In other words, it signals that users' focus on gamification motivates them to use metacommunication as metagaming.

5. Discussion

We presented an overview of verbal metacommunication applied within the frame of Streaks's gamified communication. Our data indicates that with the exception of labeling streak snaps, metacommunication did not occur on an ongoing basis, but with reference to specific events. The types of reported utterances (RQ1) included: **invitations** (to start or restart keeping streaks); **labels** (for streak snaps); **praises** of gamification milestones; **reminders, inquiries, warnings** or **excuses** regarding streak loss; **requests** to Snapchat to undo streak loss. Our observations suggest that these metacommunicative acts support the streak-framed interaction at key moments such as streak's beginning, milestones or loss. With regard to the distinction between episodic and relational metacommunication, the utterances at hand were most often episodic - clarifying a specific situation or coordinating effort connected to it, similarly to gaming. In terms of their temporal reference, metacommunicative utterances were prospective, current and retrospective, contrary to previous arguments that metaconversation is primarily retrospective (Robichaud et al., 2004). Some utterances could be described as mass metacommunication: streak invitations, celebrating milestones and warning others about streak loss were not only communicated to an individual partner but could also be broadcasted to everyone's Snapchat contacts when posted on story.

While such mass metacommunicative acts were not necessarily enjoyed by their audiences – e.g., being perceived as showing off – they served several crucial functions: to signal one's progress in the gamification challenge as well as to indirectly claim status in the community of practice; to update users' knowledge of their peers' streak achievements; as well as to implicitly foster the competition. As a result, it was common for our informants to know approximately how many streaks their friends have and, more importantly, who has the highest. The importance of Streaks (as a community of practice, as status symbol), in turn, gives rise to further practices such as reminding one's partner to snap – an act by which adolescents become enforcers of the streak rules. Hence,

although no direct causality can be claimed, the variety of metacommunicative practices may indirectly influence each other.

Within the context of gamified communication, users are trying to keep winning the "game" while keeping their gamified communication going. Streak-related metacommunication is primarily used (RQ2 & RQ3): 1) for implicit relationship management and 2) as metagaming aiding to achieve gamification goals. The streak practice entails both gamification framing communication and relationships unfolding through gamification. Hence, streak-related metacommunication is also used for both purposes: for managing relationships and for metagaming aiding to reach gamification goals. The longitudinal, daily, relational task of keeping streaks prompts the demand for particular metacommunicative actions to grant partner cooperation in a coordinated manner and hence gives rise to a significant portion of metacommunication as metagaming. The residual part of the metacommunication serves the purpose of relationship maintenance and negotiation and, in addition, also monitors the impact of gamification events on the relationship.

5.1. Relationship management

Our observations point to the common use of metacommunicative statements to clarify the specifics and nuances of situations because of their implications for the relationship between communicators. While we have no reports of direct relationship-level metacommunication of the "we are good streak partners" kind, a closer examination of Table 1 presents a variety of relationship-related utterances: inviting someone to start or restart a streak (prospective); labeling a streak snap (current); celebrating a streak milestone, explaining streak loss and requesting Snapchat to restore a lost streak (retrospective). For example, adolescents use metacommunication to assess the loss' impact on their relationship: whether one dropped the streak on purpose, or it was a mistake; whether the relationship will cease or continue, and if so - in what form. Inviting someone to restart a streak, for example, aims to mitigate potentially adverse effects of the streak loss as it indicates that losing was not intentional and that one would like to continue the streak partnership. Similarly, warning a streak partner of an anticipated streak loss is a prospective attempt to grant the continuity of the relationship in the event that the prediction comes true.

It is not fortuitous that a major portion of the reported metacommunication is focused on relationships because Snapchat Streaks are a relational score for which two parties need to work daily (Hristova et al., 2020). Streaks are hence not only inherently intertwined with users' need for relatedness (Deci & Ryan, 2000), but also pose specific "requirements" which impact preexisting relationships or shape nascent ones. Further, the timed win-loss frame provides additional clues for the change in relationships - where losing a streak may require metacommunication to clarify the status quo of the relationship. To sum up, metacommunication caters to relationship "needs" within the frame of gamified interaction: aiming to reinforce gamification's benign effects and to mitigate its potential damage on the relationship. The nuances, form or intensity can vary with respect to the closeness between users: whether the streak complements an existing "best friends" relation, whether it builds up a new relationship between users or whether the exchange is focused solely on the streak maintenance (e.g. when a streak with an acquaintance happened to become long). For example, warning streak partners about an upcoming streak loss may be limited to just one's close friends (*Richard*) as maintaining the friends relationship is perceived as more important, and hence motivates additional metacommunication.

Metacommunication helps to both unfold and negotiate relationships within the frame of gamified social media. Streak's tight functional coupling between partners gives adolescents new opportunities to differentiate: *personal from impersonal modes of communication; deep interaction from routine interaction (driven by rules, plans, tasks).* Adolescents actively learn finer differentiation between modes of gamified

social media communication as exemplified by: their *understanding when a gamification-related question is actually an invitation to grow closer; faking acceptable excuses for losing a streak; selectively tailoring modes of conversation or gamified exchange to fit their closeness with a person.*

5.2. Pervasive social media gamification

Using the concept of metacommunication allowed us to understand dynamics of interactions within the gamified frame of Snapchat Streaks - it thus adds to the emerging body of research aiming to make sense of the embeddedness of gamified design into everyday life of adolescents and more specifically, the maintenance of social relationships through mundane tasks.

Since Streaks define a "loss" and a "win" condition, metacommunication often occurs when users are struggling to achieve gamification goals. For example, sending snaps "just for the streak" is an attempt to maximize the count of individual streaks while investing less effort and time (Hristova et al., 2020). Adolescents metacommunicate prospectively - reminding partners to snap or giving one's password away in order to rescue the streak; or try to retrospectively undo a streak loss by contacting Snapchat. In these instances, adolescents metacommunicate to prevent or undo a "game over". This sort of coordination effort is also observed in the comparable setting of gaming where teammates use alternative media (e.g. phone or chat) to support gameplay (Neitzel, 2007). The versatile use of metacommunication in relation to streak loss may be a product of the asymmetric payoff of streaks, where users make a daily effort for the streak, but missing even one day leads to "game over".

Within this context, metacommunication enables streak continuation in the face of disturbances. The physical distance and lack of internet connectivity are not the final frontier of availability as adolescents ask friends to keep their streaks going instead of them. In other words, adolescents use metacommunication to appoint a surrogate "streak keeper" who will prevent a break in the gamified communication. Metacommunication hence eliminates distance, connectivity or relationship issues to keep gamification running at all times. It, thereby, boosts the streak's robustness, however, potentially at the cost of requiring even more availability on the user's part.

Within the frame of streaks, required daily gamification-related on-app activity nudges adolescents to use Snapchat regularly. Such ongoing cooperative gameplay relies on metacommunication to "fill the gaps", be it in terms of understanding, relationship or coordination. "Filling the gaps" in some situations meant nudging a partner to urgently perform actions adhering to the temporal constraints of the streak. In addition to Snapchat's gamification – the streak rules and the hourglass reminder – adolescents themselves monitor and even reinforce snapping "on time" through reminder messages or calls. Thereby, users don't just get to know their peers' routine down to the hour (Hristova et al., 2020) - what they do daily outside of school or when they usually snap - but adolescents also become gatekeepers of the gamified interaction loop among themselves. Hence, with such gamifying features, Snapchat draws adolescents into becoming an active part of Snapchat's business model - by encouraging a creation of a self-sustaining system that includes peer-sanctions against possible disturbances of said system. Ultimately, the net of obligations, expectations and customary behaviors wraps adolescents in a temporally dense improvisation of snapping on time for the streak, answering, reminding others to snap and finding workarounds in the case of bottlenecks (no access to phone or to the internet) or other problems (e.g. clarifying communicative situations and mitigating conflict).

In a word, the pervasiveness of social media in adolescents' lives pressuring them to be available around the clock (Schulz, 2019; Steiner & Heeg, 2019) can further be pushed through metacommunication. Our informants' frustration when they remind a partner to snap but there is no answer is indicative of users' emotional and behavioral involvement as enforcers of the streak rules. Furthermore, one failed attempt may

unleash a wave of spamming reminders – "drilling" for yet more availability. Adolescents are hence both proponents and subjects of the growing pervasiveness of social media communication which is private, always-on, and recently – imposing additional rules and objectives through gamification.

5.3. Limitations & further research

The semi-structured interviews and the grounded theory methodology framework of this study allowed us to document adolescents' experience and metacommunicative practices with regard to Snapchat Streaks. However, the results reported by our limited sample of Austrian highschool pupils should be verified through more diverse larger-scale future studies. Since Snapchat Streaks may be practiced differently depending on the region in which the participants live, we encourage future studies to include adolescents from different countries and cultural backgrounds. Even in our small sample, we already received information from several participants about their friends' use of Snapchat Streaks in other countries. For example, adolescents in Norway and Australia were reported to be way more involved in keeping Streaks than their Austrian counterparts. Such informal observations can be tested to reveal a more complete picture of the ways in which social media gamification impacts adolescent users' behavior in a variety of social and cultural contexts. Furthermore, the educational level or educational establishment of the participants may coin different attitudes towards social media (and Snapchat) gamification, hence including adolescents attending high schools, various specialized schools (IT, music, sports, technology etc.) or undergoing training programs for different professions, as well as adolescents outside of the formal educational system, should be included in future large-scale research. Future research could draw on observations made in qualitative studies such as the one presented here to create quantitative questionnaires or quantified behavioral reports in an attempt to reconcile theoretical research interests with questions and issues relevant for adolescent users themselves.

6. Conclusion

The study at hand study allowed us to better understand gamified interactions through the lens of metacommunication. Metacommunication occurs at key phases of interaction: initiating a streak (inviting to start or restart it), maintaining (praising achievements, labeling snaps) and losing it (warning about it, explaining why it occurred, or restoring the streak). These metacommunicative acts formed two main clusters with regard to their functionality: they were used as metagaming supporting "gameplay" or for the negotiation of relationships within the frame of gamification. As previously exemplified, the type of gamification element in combination with the managed relationships shapes the metacommunication needed for the successful continuation of the streak and the partnership. Hence, we suggest future research to examine the connection between gamification, metacommunication and metagaming at the example of gamification elements with different characteristics (e.g.: temporal, technological and social requirements). In other words, future research can explore how gamification types shape gamification-related metacommunication. Last but not least, we encourage studies to scrutinize the ways in which gamification impacts the immediacy and pervasiveness of social media interaction in the lives of users, and adolescents in particular. As exemplified by gamification-mediated communication via Snapchat Streaks, social media could be expected to further expand its penetration into adolescents' lives and relationships – a process which ought to be studied and monitored as it unfolds. Beyond privacy issues, looming impact of digital stress, behavioral modification, habit formation and addictive design may impact the wellbeing of individuals using these pervasive technologies.

CRediT authorship contribution statement

Dayana Hristova: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Project administration, Resources, Software, Writing – original draft. **Suzana Jovicic:** Conceptualization, Funding acquisition, Methodology, Project administration, Writing – review & editing. **Barbara Göbl:** Conceptualization, Funding acquisition, Project administration, Writing – review & editing. **Sara de Freitas:** Conceptualization, Supervision, Writing – review & editing. **Thomas Slunecko:** Conceptualization, Funding acquisition, Methodology, Supervision, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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