

Understanding Moderators' Conflict and Conflict Management Strategies with Streamers in Live Streaming Communities

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ABSTRACT

As each micro community centered around the streamer attempts to set its own guidelines in live streaming communities, it is common for volunteer moderators (mods) and the streamer to disagree on how to handle various situations. In this study, we conducted an online survey (N=240) with live streaming mods to explore their commitment to the streamer to grow the micro community and the different styles in which they handle conflicts with the streamer. We found that 1) mods apply more active and cooperative styles than passive and assertive styles to manage conflicts, but they might be forced to do so, and 2) mods with strong commitments to the streamer would like to apply styles showing either high concerns for the streamer or low concerns for themselves. We reflect on how these results can affect micro community development and recommend designs to mitigate conflict and strengthen commitment.

CCS CONCEPTS

• **Human-centered computing** → **Empirical studies in collaborative and social computing**; **Empirical studies in HCI**.

KEYWORDS

Conflict; Conflict Management; Commitment; Live Streaming Moderator; Content Moderation; Streamer-Moderator Relationship

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1 INTRODUCTION

Norms and rules play critical roles in regulating human behaviors in many online communities [13]. Different platforms might apply different moderation philosophies to enforce rules and norms. For example, social media giants, such as Facebook and Twitter, may apply commercial moderation, hiring contractors to moderate with formal guidelines and instructions [25, 54]; other platforms, such as Discord and Reddit, containing many different micro communities, apply community moderation, relying on the micro communities to

select their community members as volunteer moderators (mods) to govern their users [58].

For platforms applying community moderation, communities often develop their own rules through discussions among volunteer mods and community members [42, 47]. As guardians to manage and grow the communities, volunteer mods have received much research attention (e.g., [25, 54]). However, they also experience discrepancy in the rule development process regarding what is acceptable and how to punish violators [58]. High levels of conflicts or specific types of conflicts can threaten the speed of decision making, hinder implementation [38], and even threaten the continuity of communities [49]. Thus, it is necessary to understand how volunteer mods handle conflicts and facilitate community growth, considering the large amount of commercial values the volunteer work created for the platform [43].

In live streaming communities, the moderation team is formed and led by the streamer, consisting of both the streamer and volunteer mods. Mods are usually motivated by helping the streamer or the community in general to have a good experience [72]. Streamers can easily appoint other users as mods with permission or revoke mods' status. Even though prior work in HCI and CSCW has documented the application of live streaming in diverse domains from the streamer-viewer relationship perspective (e.g., [12, 29, 45]), the streamer-moderator relationship has received relatively less scholarly attention. On live streaming platforms, the micro community (called "channel" on Twitch) is streamer-centric; different streamers employ different rules to meet their expectations. However, many channels do not have clear rules or even have no rule at all [9]. The lack of clear guidelines often leads them to disagree on what is acceptable and what decision they should make.

This research focuses on community moderation on live streaming platforms and explores mods' conflict with management styles and mods' commitments to the streamer. We contribute to understanding mods' conflict management during the moderation process in user-governed online communities and providing insights to micro community leaders and mods who seek to handle conflicts effectively to grow the micro community.

2 RELATED WORK

2.1 Live Streaming Communities and HCI

Live streaming is a interactive media combining high-fidelity streaming in the broadcasting and low-fidelity text communication in the chat [29]. The streamer visually broadcasts content to attract viewers to join the channel to perform a series of activities, such as chatting, following, and subscribing. To manage viewers, the streamer

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assigns active community members as volunteer mods with special badges along with their usernames to indicate their roles and powers [72], such as a white sword with green background badge on Twitch and a small wrench icon on YouTube Live to indicate their roles and powers to fix problems and punish viewers. Many HCI scholars have explored topics related to live streaming, such as gaming [29], education [14], e-commerce [62], information communication for development [15], virtual context [46] from various perspectives, such as presentation and privacy [44], identity and marginalization [24], engagement and interaction [59], and harassment and content moderation [66]. Most focus on streamer-viewer interaction and highlight challenges for live streaming system design with implications for improving interaction and community building.

A thread of research start to focus on the streamer-moderator relationship and explore topics such as how streamer moderator work as a team to coordinate tasks and collaborate [10], and how moderators experience emotional tolls in their relationship with the streamer [72]. These studies more or less mentioned that mods might experience some conflict over tasks, rules, and emotions. To supplement and extend this line of research on streamer-moderator relationship management, this paper focuses on conflict and conflict management in live streaming communities.

2.2 Conflict in Online Communities

Conflict is “an interactive process manifested in incompatibility, disagreement, or dissonance within or between social entities” [1]. In this study, we focus on the intragroup conflicts within the micro community of live streaming. Early research generally divides conflicts into two types: task conflict (disagreement related to task issues) and relationship conflict (incompatibility related to emotional or interpersonal issues) [3, 28, 36]. Later evidence has suggested another type of conflict — process conflict. Process conflict occurs when group members disagree on the logistics of the task, such as delegation of tasks and responsibilities [37, 38]. Normative conflict is defined as a perceived discrepancy between the current norms of a group and an alternative standard for behavior and often arises from inconsistencies between aspects of identity [50]. Normative conflict is associated with rules and norms, such as policies, governance structures, and ideology [17, 23]. Different conflicts affect various group outcomes such as productivity, effectiveness, satisfaction, and propensity to leave (see meta-analysis by [18]).

Some research has explored the source of online conflicts and different types of conflicts in task-oriented online communities, highlighting the importance of understanding conflicts and their impact on community development [23, 32]. For example, in open source communities, task conflicts occurred between professional and voluntary programmers in that they had different viewpoints and backgrounds of projects and programming; relationship conflicts occurred in that people worked globally with different cultures and languages [67]. Other work has examined the common pattern of conflict from the ground and explored how task, process, relationship, and normative conflicts intertwined [23]. Inappropriate handling of these conflicts can cause poor group outcomes such as poor performance, dissatisfaction, and member attrition [23, 48]. In live streaming communities, conflicts also happens between the

platform and its users. For example, in online fandom communities, conflicts between fans and the platform occur when the platform, for commercial purposes, bans users who stream live concerts, and users feel a loss of community cohesion and frustration about the platform [35]. Additionally, mods experiencing conflict with other mods can quit the community [55].

2.3 Conflict Management in Online communities

Conflicts can be both constructive and destructive [19] and need to be effectively managed rather than completely resolved, suggesting that communities should keep conflicts at a certain level to minimize negative effects and enhance positive effects, such as satisfying the needs and expectations of stakeholders [1]. There are five styles of handling interpersonal conflicts [52] with two dimensions [63] in the organizational context: (a) integrating (high concern for self and the other); (b) dominating (high concern for self and low concern for the other); (c) obliging (low concern for self and high concern for the other); (d) avoiding (low concern for both dimensions); and (e) compromising (middle in both dimensions). Additionally, strategies showing concerns for self are assertive; strategies showing concerns for the other are cooperative [63]. Many scholars document the specific conflicts and management strategies in online communities. For example, the styles to manage task and relationship conflicts in open source development communities are using third-party intervention, coding in modularity, paralleling software development lines, and leaving communities [67]. In virtual teams, members manage their conflict and negative emotions using third-party mediation, apology, explanation, positive reinforcement, and feedback-seeking behaviors [4]. Little work has directly applied the five styles in online communities. To our knowledge, Ishii’s work is the first to directly apply these styles exploring online relationships [34]. Their work suggests that different computer-mediated communication technologies (e-mail, text messaging, vs. web camera) can influence users’ perception of management styles and encourages exploration of a broader range of online communities. In line with their work, we directly apply Rahim’s five management styles to live streaming communities and ask the following questions:

- **RQ1:** What are the specific incidents of conflict, and how do mods handle different conflicts with different styles?

2.4 Online Community Commitment

Commitment research originally explores why volunteers’ dedication varies at nonprofit organizations [8], making it a particularly appropriate theory base for understanding an individual’s voluntary behavior in online communities [7]. There are three types of commitment in online communities, including affective commitment (emotional attachment to the community), continuance commitment (awareness of the costs to leave the community), and normative commitment (feelings of obligation to remain with the community) [7], adapted from organization research [2]. In live streaming communities, mods are motivated by building a personal relationship with the streamer or helping the streamer grow the

community [72]. Thus, we adopt the three community commitments into volunteer mods' commitments to the streamer: affective commitment to the streamer, continuance commitment to the streamer, and normative commitment to the streamer.

Online users apply cooperative management styles in their close relationships and avoid assertive styles if they want to continue the relationship [34]. Though relational explanation and encouragement cannot decrease the propensity to leave in goal-oriented communities because they fail to offer the insight to solve the problem and achieve the goal [33], it is still unclear in relationship-oriented communities how different community commitments influence management styles. In addition, past research reported that text-based CMC diminishes status and power differences yet increases equality between communicators [61], and individuals can be aggressive toward one another [71]. Thus, anonymous users may take advantage of these characteristics and manage conflicts differently with someone they have never met. Thus, we asked:

- **RQ2:** How do moderators' commitments to the streamer and moderation experience influence conflict management styles?

3 METHODS

This project was approved by the Institutional Review Board (IRB). We aim to understand the relationships of mods' perceptions among conflicts, conflict management styles, and commitments to the streamer. We designed a survey to collect self-reported data from mods. At the beginning of the survey, we clarified that we were looking for content moderators in live streaming communities, and this study would help us understand the conflict issue between mods and streamers. Participants had to give their consent to begin the survey. The main survey includes three parts. The first part consists of general questions about their moderation experience, such as "How long have you been in live streaming communities?" "How active do you moderate the chat?" and "What content is the channel focused on?" Near the end of the first part, we also had an open-ended question to ask mods to describe incidents of conflict with the streamer and how they handle it. This question can potentially help us gain the context of conflict and conflict management. The second part includes the main variables about measurements of conflict management styles and commitments. The third part includes demographic variables, such as age, race, gender, and education. The main variables and questions are in [Appendix A](#).

3.1 Participant Recruitment

We used a recruitment platform called Prolific¹ to collect the data. The platform used its user pool and automatically matched and distributed the survey to potential targets based on users' self-reported information on its platform. About 500 people participated. We carefully set the survey and filtering questions to ensure the quality of the data. Specifically, we asked a multiple-choice question about their role in the live streaming community (Streamer/Broadcaster, Viewer/Normal user, Moderator (Mod), Other) at the beginning of the survey. Only participants who chose at least the "Moderator (Mod)" option were qualified for the study. This survey took about

¹<https://prolific.co/>. Retrieved on March 14, 2022

10-15 minutes to complete. All responses with completion times less than 5 minutes were discarded. We monitored the survey progress and reviewed each participant's completion in about a week. Each participant received the code to redeem \$2 after completion. In the middle of the survey, we also intentionally repeated a question as an attention-checking question. Participants should have the same answer to prove that they have read the questions carefully. After rejecting and discarded responses through the filter question, attention-checking question, and completion time constraints, we finally had 240 qualified responses for analysis.

3.2 Participant Demographic

Among the 240 mods, 45.4% also identified them as viewer/normal users and 14.6% as streamer. Participant's gender was 77.1% male, 22.1% female, 0.4% trans female, and 0.4% non-conforming. The participants were predominantly White (62.5%), followed by Hispanic/Latino (31.3%), Asian (5.0%), and African-American (3.8%); one participant preferred not to answer. Most participants had a bachelor's degree (29.6%), followed by graduated high school (27.1%), some college/no degree (26.3%), advanced degree (8.3%), associated degree (7.5%), and less than high school (1.3%). Most participants were young users: 18-24 years old (57.9%), 25-24 years old (31.3%), 35-44 years old (8.3%), and 45-55 years old (2.5%).

3.3 Survey Measures

3.3.1 Conflict-management Styles. We adapted from Rahim's 28-item conflict-management scales [52] to measure the five conflict-management styles (1= "Strongly Disagree" to 5= "Strongly Agree"): integrating ($M= 4.07$, $SD= .57$, $\alpha= .84$), avoiding ($M= 3.31$, $SD= .83$, $\alpha= .79$), dominating ($M= 2.99$, $SD= .80$, $\alpha= .79$), obliging ($M= 3.79$, $SD= .61$, $\alpha= .85$), compromising ($M= 3.71$, $SD= .59$, $\alpha= .70$).

3.3.2 Commitment to the Streamer. We measured commitment using the scales originally developed by Meyer and Allen [2] and adapted by Bateman et al. to online communities (1= "Strongly Disagree" to 5= "Strongly Agree") [7]. They were continuance commitment to the streamer (CCTs) ($M= 3.00$, $SD= .68$, $\alpha= .60$), normative commitment to the streamer (NCTs) ($M= 3.34$, $SD= .81$, $\alpha= .80$), affective commitment to the streamer (ACTs) ($M= 3.89$, $SD= .71$, $\alpha= .86$).

3.3.3 Moderation Experience. Prior work shows that the tenure of community users is a factor related to users' commitment and participation. Furthermore, experienced community members might behave differently. For example, strongly identified members are likely to challenge community norms when they experience conflict between norms and important alternative standards of behavior, in particular when they perceive norms as harmful to the community [50]. We also asked questions related to their moderation experience, such as the length of being a mods, weekly workload, and the level of interaction and moderation in the chat. The questions and measures are in [Appendix A](#).

3.4 Open-ended Question Analysis

The deductive content analysis aims to test previous theories, categories, and models in a different situation [21]. We followed a

deductive approach to have the four types of conflict and five management styles as a structured categorization matrix. First, two authors went through the responses to prepare to code and decided to treat each response as a unit since most of the responses were short. The leading author then imported all data into ATLAS.ti² to iteratively code all responses in approximately three weeks with weekly calibration meetings with the second author to present quotes and discuss the fit. In the coding process, the first author worked on all comments to put them into categories in the first week, and then the authors sat together to go through the comments one by one to confirm they are good fit for each category. After that, the first author coded the comments under each category with potential subcategories and had a discussion with the second author to reach intercoder agreement. For example, some comments were initially put under normative conflict. Further specific codes such as “streamer considers joke, but mods consider offensive” and “streamer wants to ban someone not violating rules” formed a subcategory called “discrepancy about rules.” Some responses about simply helping streamers or blocking viewers were not considered conflicts in the moderation team and were put aside. Some long quotes were coded with both conflict and management styles. We reported data roughly following the emphasis of the quote. If the description was detailed about the conflict, we reported it in the conflict category; if the description was detailed about management, we reported it in the management style.

4 RESULTS

4.1 Descriptive Results

Most mods only moderated for one live streaming platform (77.5%), 20.0% moderated two to three platforms, and only 2.5% moderated more than three platforms. The main platform was Twitch (65.4%), followed by YouTube Live (18.6%), Facebook Live (7.1%), Instagram Live (5.8%), and others (3.2%)³. On the main platform they moderated, most of them moderated one channel (60.4%), and then 2-3 channels (32.1%), 4-5 channels (4.2%), 6-7 channels (2.5%), and more than 7 channels (0.8%). Most mods have stayed in the live streaming communities more than two years (60.9%) and have been modding for more than one year (66.2%) (see Figure 1a). Most mods are active interacting (81.3%) and modding (83.7%) the chat (see Figure 1b). Most mods spent less than 12 hours in a week in moderation (50.4%), and then 12-24 hours (32.5%), 24-36 hours (11.3%), 36-48 hours (3.8%), and more than 48 hours (2.1%). The streaming content that they mainly moderated was gaming (77.5%), followed by just chat (33.8%), art and music (14.2%), food and eating (7.9%), outdoor activity (6.3%), shopping (2.5%), and others (8.8%) such as 3D modeling, technology, talk shows, education, sports, etc.

4.2 RQ1: Incidents of Conflict and Conflict Management Styles

Most mods (about 68%) clearly expressed certain levels of conflict with the streamer. A group of mods expressed no specific conflict with the streamer or explained that they punished viewers (30.8%).

²<https://atlasti.com/>

³Due to an error in initial survey design, participants were invited by their Prolific ID to participate the supplementary survey and got 156 responses about platform information.

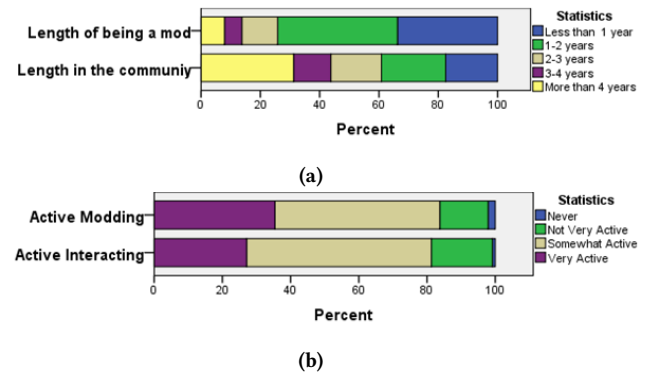


Figure 1: Stack bar chart for the length of being a mod, length in the community, active modding, and active interacting

Some mods mentioned the conflict between streamers in different channels or helping streamers with technical issues (approximately 1%). These are not considered intragroup conflicts between mods and streamers. We only reported the conflict between mods and streamers. In the following section, each quote, either short or long, represented one mod’s opinion.

4.2.1 Normative Conflict. Normative conflict in the channel can be separated into two subcategories: streamer’s violation and discrepancy about rules (whether the comments/post should be considered a violation).

Streamer Violation. About 11 mods mentioned streamer violation. Some streamers did “not fully understand the rules” or went off-topic and started doing “something against terms of service.” mods would remind streamers to adhere to the rules and help them to avoid norm-violation against the community guideline. Usually, streamers took their advice, and “they are good about getting back on the topic.” One mod said that the streamer “unknowingly did not follow up some rules regarding copyrighted content (mostly music tracks) but we got hold of the situation promptly, and the problem got solved smoothly.” Similarly, the streamer presented a bad act in the stream without notification. Mods sometimes even “spam” and “annoy him” to remind the streamer as a way to protect the streamer and the community, as this mod said, “The streamer accidentally showed a bad word that is bannable on stream and didn’t notice, so as the mods we had to spam him and annoy him hard so he would take down the stream and delete the VOD. In my opinion, the faster, the better, otherwise they’d get banned.”

Generally, when mods experienced normative conflict about the streamer’s violation, they showed strong concerns to the streamer and would like to actively communicate with the streamer to remedy the behaviors, a typical integrating style. In rare cases, if the streamer insisted on not violating the rules or not listening to mod’s suggestions, mods might quit and leave the community as an avoiding style. One mod said, “The incident involved a streamer who kept making racist and offensive comments in a row. He later explained that it was a joke, but I was not okay with that, so I quit.” Quitting

moderation was an extreme case as a way to passively avoid conflict with the streamer.

Discrepancy About Rules. Nine mods specifically mentioned the discrepancy about rules. The streamer and mods sometimes had a discrepancy about whether the content is offensive or not, such as “*difference in opinion regarding potential spam message*” and “*discrepancies to what could and couldn't be said in the live chat.*” Sometimes, the mod considered it was offensive, but the streamer did not.

Most recently a conflict of opinions happened, and that is what happens the most, even tho we mods work to keep things in order, the stream owner has his own idea of how he wants things to be, what he tolerates, and what he doesn't. When we end up disagreeing there's the problem, this time was about what a user in chat wrote and was actually someone he met playing a friend, so for me, it was offensive even if said in a jokingly way, but for the streamer, it was okay because it was said as a joke plus he was his friend. Basically, it got sorted out by talking and discussing.

According to this mod, the mod and the streamer finally reached an agreement and “*sorted out*” the conflict after discussion, although we did not know whether it was a punishment or permission. Sometimes, the streamer considered it a violation, but the mods did not think so. One mod said, “*The streamer insists that I ban all the viewers who spam, but I believe that sometimes this can attract even more viewers and make the channel more alive. Of course, I don't mean spamming inappropriate things, but I mean spamming things related to the game the streamer plays.*” The mod considered that spamming related to the streaming topic attracted viewers while the streamer did not allow any spam. Though mods provide suggestions and even argue with the moderation team, the streamer listened, but might “*insist*” their attitudes towards punishment.

A user shared content in a specific channel, and the streamer (owner of the channel) asked me to remove the content due to being in a 'wrong channel'. I did not agree since what that user posted could be useful for many people who used that channel and declined it. The way I handled it was to give my opinion about the content, but either way, it was removed by other moderators not long after.

The mod usually handled this type of normative conflict by giving opinions. If the streamer accepted the advice after the discussion, it was an integrating style. If the streamer or other mods insisted on their attitudes, the mod had to compromise and accept the team's decision, which was a compromising style, a process with active communication.

4.2.2 Process Conflict. Eight mods reported issues about communication, task assignment, and responsibility. They explained issues, suggested alternatives, or apologized for making mistakes during the process. A few mods expressed the overload of the work due to the lack of enough mods. One mod said, “*They wanted me to be more proactive with their viewers and answer to every comment, which isn't possible taking into consideration that there are a lot of comments*

per stream, so we came to an agreement of what was expected of me during the streams.” Additionally, mods would like to discuss with the streamer how to handle process conflicts, such as hiring more mods to distribute tasks. Streamers considered these to be good ideas and would implement them: “*I explained to the streamer that there are too few moderators for such a large group of recipients. He claimed that everything was fine, but in the end, he saw for himself that there were too few of us for such a large audience. I managed to convince him to find someone to help. Now he says it was a very good idea.*” In these cases, the mods handled conflicts by explaining what they did and suggesting what the streamer could do to reduce workload, a typical integrating style.

Sometimes, the task and responsibility were hard to meet the needs of both parties. The streamer and the mods had to make a compromise. For example, a mod said “*One conflict that comes to mind is that there are times I've been busy and was unable to moderate during the entire live stream, so the streamer had to moderate the chat himself. I just apologized, the streamer understood, and I moderated normally.*” According to this mod, the streamer had high expectations beyond the mod's capability. The mod also admitted what he could do and apologized. The streamer accepted the fact and let the mod keep doing what he could.

A few mods had different opinions about the streamer's performance and preference during the streaming process and would like to suggest the streamer behave in a certain way to facilitate community growth. One mod said, “*The streamer wanted to change the chat to subscriber-only mode, and I wanted to keep it public. I told him that keeping the chat public would increase his viewers, and he kept the chat public.*” In this case, the streamer considered this good advice and took it. However, the streamer can also ignore their suggestion and leave it in the air, as this mod: “*We did get into an argument once because I told him he should use a microphone and a webcam so more people would join, and he didn't want to. It was not a heated argument, so it kind of blew off on itself.*”

When experiencing process conflict, the mods would like to discuss and coordinate with the streamer no matter whether they finally reached an agreement, an integrating style. Sometimes, they had to make a compromise to consider the situation of both parties, a compromising style.

4.2.3 Relationship Conflict. It is related to emotional and personal battlement with the streamer. 13 mods reported an apparent relationship conflict with the streamer. The tension was usually caused by mistakenly blocking streamers' friends. For example, “*Streamer's friend started to insult him for jokes. I banned him because it was against the rules; I didn't know that was his friend, and streamer was angry on me.*” Mods were at risk of losing mod status if they had a relationship conflict with the streamer. Sometimes, the streamer warned the mod to lose status, but the mod argued back: “*There was one person who broke like 5 rules so I timed out him for 10min, later on, the streamer messaged me to unban him because he was his friend and I had a choice to unban him or get kicked out of the mods team. I had an argument with him after a stream, but everything was fine after all.*”

Communication or personally and gently handling the emotional streamer helped resolve the conflict. One mod said that he accidentally banned the streamer's close friends, making the streamer very

angry and cancel his mod status, but a few days later, the streamer gave the mod a status again. The mods did not argue the issue with the streamer and fortunately got the status back. Alternatively, they might also talk with the streamer: *“The streamer started acting weird with me, he removed my mod, but after we talked, I got my mod back. I guess he was in a bad day.”* If the discussion failed to reach agreement, the mod might not *“continue the conversation,”* like this mod said, *“During the conversation about the election we did not agree in the podium, there was an emotional discussion with the use of bad words, to end it I just did not continue the conversation.”* In this case, the mod tried an integrating style first and used an avoiding style if the former one did not work.

4.2.4 Task Conflict. It is the disagreement about the moderation action. About 33 mods reported the conflict regarding the punishment they should give the violator. About 12 mods said that the streamer complained about *“being too strict in banning users for inappropriate comments”* (e.g., *“I was too strict with moderating the use of some emoticons,” “I was too hard on the banishing of people”*). Though the viewer violated the rules, streamers were very *“soft”* to some matters, but mods considered severe punishments.

It happens more often than not that some viewers do not follow the rules (no ads, no caps, no asking for subs...), and as a consequence got banned. In those situations, we (= mods) just ban or timeout them for a while, and sometimes the streamers consider that we have been too strict (even though rules are rules and should be respected).

In the above case, both the streamer and mods mutually agreed that some viewers violated the rules, but the streamer considered mods' punishment such as ban and timeout to be too strict. Perhaps the streamer thought that frequent blocking hindered the viewership and was harmful to the micro community. However, mods might have different values.

As a rule, we don't allow racial slurs in chat, in any context whatsoever. There's a lot of popular memes that involve the use of racial slurs and they get posted in the chat by viewers. Recently the streamer has asked me to ignore these racist memes, but I keep enforcing the rules, banning potential newcomers/subs. He thought this affected his subscription income, but I don't think we should allow this just because of the money.

This mod felt that *“racial slurs”* should be banned while the streamer permitted the violation with the concern of losing subscription income. The mod used the authority to keep enforcing the rules and not taking the streamer's advice to *“ignore these racist memes,”* a dominating style.

Oppositely, the streamer sometimes required the mods to enforce the rules and actively moderate the chat while the mods had different opinions about punishment. One mod and the streamer showed different attitudes and punishments toward a troll comment: *“The streamer thought it was not OK while I thought it wasn't even worth it to give attention to a troll comment. I simply muted the viewer while the streamer wanted to give him an opportunity to discuss.”* According to this mod, the normative conflict (whether

the troll was a violation) caused a task conflict (whether it should be blocked). Sometimes, the streamer might find the mod's opinion valuable after insisting on their opinions: *“He told me that I was too permissive with the chat and that then he could create a problem if his community got out of control... Later, as soon as I acted more harshly, it fell apart as several users complained about it. In the end, we solved it by talking, he defends more the attitude of his moderators since then.”* In this case, the mod followed the streamer's suggestions and *“acted more harshly,”* but caused complaints. The mod had more expertise and experience about what was permissive or not and won the streamer's attitude.

Task Conflict and Integrating. About 15 mods were highly active in engaging and providing opinions to reach an agreement that satisfies both the streamer and them. For task conflict, they would usually either talk to the streamer to reach an agreement together or convince the streamer to allow or block viewers to support the micro community. One mod said, *“We have had personal disputes over certain toxic messages which we thought should have been banned or not. But nothing too heated, we discussed it over DMs and came to a mutual agreement.”*

Several mods convinced the streamer by explaining and showing concerns to the streamer and the micro community. *“The streamer wanted me to ban people he didn't like personally, but who didn't break chat rules. I talked to him in private chat and convinced him it wasn't a good idea long term. We try to preach free speech.”* This mod and the streamer agreed that this was not a violation, but the streamer personally wanted to ban the viewer, the mods adhered to the rules and convinced the streamer not to do so. Similarly, another mod said, *“We had a discussion about if we needed to block people that are always being mean to others, we talk a lot, and I convinced him that the best thing for the rest of the community was to ban them.”*

Though sometimes the violator was the streamer's friend, the mod would like to argue with the streamer, showing concern for the rest of the community and convincing the streamer to ask their friends to stop breaking the rules.

We got into a conflict because some of his friends were spamming the chat (like in a joke or just messing around) and I wanted to ban them at least for the rest of the stream because they were making the chat unbearable for other users. The conflict was that he didn't want to ban them because he believed that was too much, but I tried to argue that they were affecting other members in the chat that are more important because honestly his friends were still going to continue be liking and commenting on posts but other people could go. He told me he would talk with them, he did and after a couple of minutes, the spamming stopped.

In this case, the mod didn't ban the violator because the streamer *“believed that was too much,”* but the streamer took the mod's advice and asked the violator to stop the violation in the chat.

Task Conflict and Obliging. About 14 mods explicitly reported that they *“stopped arguing and gave in”* if they had a task conflict, such as reversing punishment and following the order to punish

someone, though they disagreed about the punishment. For example, “I kicked a user out of chat that I felt violated the streamer’s rules but they wanted them to stay. It’s their channel so I brought them back,” said one mod. Sometimes, the streamer considered political and controversial themes violations and asked mods to make severe punishments. One mod said, “He asked me to ban everyone that remotely mentioned politics, I thought it was a bit harsh, but I still did it.” In this case, though the mod felt the punishment was harsh but still followed the order. Conversely, the mod sometimes considered a harsh punishment, but the streamer did not feel so.

I banned a user for saying something, which I deemed was offensive to the streamer and in general, but the streamer didn’t agree with me. He didn’t think it was worthy of a permanent ban and wanted me to change it to a temporary one. I eventually did what the streamer asked, but I strongly disagreed that what the user said was acceptable.

According to this mod, the disagreement was between a “permanent ban” or a “temporary one.” Though the mod “strongly disagreed” with the streamer, the mod eventually followed the streamer’s order and changed the punishment. If mods did not follow the streamer’s order, they might lose their mod status, so they had to oblige, as this mod said, “There was a certain occasion of a troll in the comments cursing on the streamer. I offered to ban the troll, but the streamer wanted to get in conflict with him exchanging curses live because it was more fun—thus canceling my purpose as a mod. I had to oblige.”

4.3 RQ2: Commitment to the Streamer and Conflict Management Styles

We ran a series of linear regression models with the mod’s commitment to the streamer and moderation experience as independent variables and five conflict management styles as dependent variables (see Table 1). The details of the measurements with items are in Appendix A. For integrating, the model explained 5% variance, $adjust R^2 = .05$, $F(8,231) = 2.70$, $p = .007$. Only ACTs was positively related to it. For avoiding, the model explained 7% variance, $adjust R^2 = .07$, $F(8,231) = 3.13$, $p = .002$. Both ACTs and hours of moderation weekly are positively related to it. For obliging, the model explained 19% variance, $adjust R^2 = .19$, $F(8,231) = 7.86$, $p < .001$. Both NCTs and ACTs are positively related to obliging style; additionally, length in the community is positively related, but the length of being mod is negatively related to it. For dominating, the model is not significant ($adjust R^2 = .02$, $F(8,231) = 1.68$, $p = .104$), though length of being mod is positively related to it. For compromising, the model is not significant ($adjust R^2 = .01$, $F(8,231) = 1.39$, $p = .202$), though length in the community is negatively related to it.

5 DISCUSSION

5.1 Active and Cooperative Style Versus Passive and Assertive Style

The first research question explores the relationship between conflict and conflict management styles. To cooperatively manage conflicts, team members tend to use conflict to promote compatible goals and resolve them with integrating and high-quality solutions

for mutual benefit; consequently, cooperativeness can increase procedural justice and lead to team innovation [65]. We found that generally mods try integrating first with active communication with streamers; depending on streamers, they might change the styles to obliging and compromising; they rarely use avoiding and dominating styles. Such findings suggest that individual mod, perform more active and cooperative than passive and assertive styles to handle conflict with the streamer. Cooperative styles like integrating to manage conflicts can also increase their perceptions of interpersonal outcomes, such as belonging and appreciation for others [70]. However, conflict is a complex and dynamic process that changes over time and is influenced by many factors [32], and management styles are also highly contingent; no one best approach can deal with different situations effectively [1]. During the conflict management process [53], the real-time nature of live streaming requires mods to identify violations and make quick decisions. Problem-solving processes cause conflict. As conflicts arise and evolve, mods manage different conflicts with contingent styles.

Assertive styles can also be effective but are highly dependent on individual and collaborative factors such as the number of mods, the credibility of the mods, and the overall opinion valence in the team [30]. Similarly, we found that moderation experience affects management styles (e.g., mods with higher tenure of the community are more likely to use obliging, but experienced mods are more likely to use dominating), but we do not know whether these styles are effective. Additionally, how to balance cooperative and assertive styles and increase the overall effectiveness of conflict management needs future investigation.

Such results show that, though mods can actively propose and argue with the streamer, the streamer is the core in the hierarchy, indicating that the communication among mods and the streamer is not exactly democratic, similar to commercial live streaming platforms arbitrarily using their power to ban viewers without clear explanation of the policy in online fandom communities [35]. We saw that mods’ autonomy in live streaming communities is somewhat restricted, compared with mods making decisions on other online communities. The qualitative results show that mods can use dominating style to handle task conflict (e.g., keep enforcing rules and ban racial slurs instead of taking the streamer’s advice to ignore them). However, we don’t know what happened next. Streamers can accept mods’ actions and move on or insist on their opinions and cause more task conflict, even transfer the task conflict into a relationship conflict to risk losing mod status. Mods have to use either obliging or avoidance in the end. It seems like mods are forced to be cooperative, to some extent. Further research may examine the power structure between streamers and mods and explore how these power dynamics influence conflict dynamics and conflict management styles.

5.2 High Concerns for the Streamer or Low Concerns for Mods Themselves

The second research question explores the relationship between commitment and conflict management styles. In general, mods with strong commitments to the streamer would like to apply styles that show either high concerns for the streamer or low concerns for themselves. In line with previous work that indicates that different

Table 1: RQ2: Regression Model Examining the Effect of Commitments to the Streamer on Conflict Management Styles

Variables	Integrating	Avoiding	Dominating	Obliging	Compromising
Commitments					
CcTS	.01	.06	.08	.08	-.02
NcTS	.07	.25***	.10	.23**	.09
AcTS	.19*	-.09	.02	.23**	.03
Moderation experience					
Length in the community	-.08	-.12	-.09	.18**	-.18*
Length of being a mod	.15	-.02	.17*	-.16*	.05
Hours of moderation weekly	-.02	.15*	-.04	-.02	.07
Active interacting	.07	.12	.06	.00	.01
Active modding	.05	-.13	.05	.06	.07
<i>Adjust R</i> ²	.05	.07	.02	.19	.01
<i>F</i>	2.70**	3.13**	1.68	7.86***	1.39

Note: [*] $p < .05$; [**] $p < .01$; [***] $p < .001$; all β values are standardized coefficients; AcTS = Affective Commitment to the Streamer; CcTS = Continuance Commitment to the Streamer; NcTS = Normative Commitment to the Streamer.

commitments affect different types of online behavior [7], we contribute to a nuanced understanding of how different commitments to the streamer predict their conflict management styles with the streamer. Previous work suggests that users who are in a close relationship or intend to build a close relationship with others will use the integrating and obliging style [34]. Mods want to build a strong affective bond with the streamer and show concerns to the streamer [72]. Similarly, we found that mods having a stronger affective commitment to the streamer are more likely to show high concerns for the streamer and use integrating and obliging styles.

The internalization of community norms drives users behave in a relatively selfless way because of the sense of obligation even though they might experience the potential undertake [51]. Prior work shows that community members with strong normative commitment would like to promote community norms [6]. Working for streamer-centric communities on live streaming platforms (e.g., “It is their channel”) requires mods to behave in a way reflecting the value and preference of the streamer, such as community norms and rules [10]. Thus, mods with a strong normative commitment to the streamer would like to avoid augment and follow the streamer’s order when experiencing conflicts. However, as we showed in the previous section, management styles are contingent. Static regression analysis cannot reflect the dynamic of management styles. Furthermore, though we know the different commitments are associated with different management styles, we do not know how different commitment developed over time and not consider various antecedents, such as trust and supportiveness [7], which need further investigation.

Length in the community is a good indicator of the familiarity of the community norms by seeing and practicing [41, 68]. While they know what is expected from a viewer’s perspective, they are familiar with the streamer’s expectation and would like to follow the streamer’s advice rather than negotiating and compromising finally. The length of being a mod is a good indicator of power and experience. Each mod has a badge to indicate their power and status. They also have more access to the streamer’s settings and a closer relationship with the streamer [72] as they work as a team to

coordinate and negotiate tasks and responsibility [10]. Experienced mods can sometimes even develop rules through collaboration with the streamer [10]; thus, they have greater negotiation power in the conflict management process, more likely to use dominating (assertive) and less likely to obliging (cooperative). This supplements the qualitative results showing that mods with expertise and experience win the streamers’ attitudes. Weekly moderation hours are a good indicator of moderation intensity and cognitive load if they work continuously for a long period [11]; due to fatigue to deal with negative content, they are less likely to actively engage in and prefer a passive way. In this sense, we contribute to considering the moderation experience from various dimensions, not only the length of tenure [16], and showing how different dimensions affect mods’ conflict management styles.

5.3 Design Implications

5.3.1 Clarifying Norms and Punishment to Avoid High-level Task and Normative Conflict. Task conflict can decrease group loyalty, commitment, intention to stay in the present organization, and job satisfaction [39], and is detrimental to group functioning when members conduct routine tasks [36]. Normative conflict with the community decreases the affective and normative commitment of users to the community [17].

The prominent category about task conflict suggests that though mods and the streamer agree about the violation, which is clearly stated in the chat rule or channel rule, they have different attitudes toward a punishment to the violator in many cases. Many community rules use prescriptive and restrictive norms to show what is allowed or not [22], but rarely specify the consequence. As a way to avoid task conflict, the rule statements should indicate the consequence of the violation. However, too much transparency can also cause problems and allow violators to strategically game the moderation system [20]. There is a need to balance effectiveness with fairness and transparency in moderation mechanisms [56].

Research has shown that the mods’ setting and view are different from the viewer’s view and that mods can have access to a lot of information invisible to the public [11]. We propose an alternative

mechanism to show clear rules with consequences in different scenarios, which is only visible to the moderation team but invisible to the public. For example, on the live streaming platform Twitch, designers can develop a two-layer chat rule with a switch button from the mod's view; mods can easily switch between the general rule display and the more specific rule display with decision suggestions. The public chat rule focuses on the clarity of the rule, whereas the private rules focus more on the consequences of each scenario.

5.3.2 Providing More Social Support to Mods to Increase Their Commitments. The literature has consistently suggested that as the relationship conflict increases, the affective commitment to the community decreases [36, 48, 60]. Moderators experience emotional tolls [72] when building relationships with streamers. Emotional support can increase users' community commitments with lower risk to dropout [69]. Designers can consider adding a care and appreciation mechanism to show the streamers' emotional support to mods' contribution. For example, on Twitch, designers can provide a mechanism to allow streamers to customize mod badges to specially show their appreciation to mods' diverse roles and responsibilities in the moderation team.

Communication can also work as a way to mitigate conflicts [10, 40] and increase users' commitment to the community [73]. Better communication between mods and the streamer can work as a way to clarify rules and norms and reduce assertive and passive management styles. Recent work shows that mods and streamers use both on-platform (e.g., Whisper on Twitch) and off-platform (e.g., Discord) chat to coordinate and collaborate on moderation tasks [10]. Live streaming system designers can also add mechanisms to facilitate streamer's informational and instrumental support to mods. For example, Twitch can enrich its chat features with the integration of relevant developed resources and instructions with rules and norms.

5.3.3 Tools to Balance the Power Dynamic to Facilitate Equitable Collaboration. Lack of empowerment to confront or discuss conflict with others forces users to passively respond to conflict [26] and harms the community cohesion [35]. Live streaming platforms allow streamers to easily grant or revoke mods' privileges. Mods have less power in negotiation in this process. Mods responded to mod status loss with passive styles from avoiding, compromising, and obliging. We propose a mechanism that facilitates the mod's appealing process or increases the streamer's barrier to arbitrarily cancel or entitle the mod's status. For example, on Twitch, the designer can consider adding a two-sided agreement mechanism (e.g., a pop-up window to ask mods and streamers to agree to the terms of service), after both the streamer and the mod agree to entitle mod status or revoke. Additionally, it can also open a specific channel to hear both the streamer's and mods' voices, and handle the streamer-mods conflict when they encounter trouble during the entitlement or revocation process. We don't know how it will affect streamers' thoughts about mod selection; maybe it will demotivate streamers to select mods or increase the conflict with mods since they have more power in the hierarchy. Understanding the ways in which we balance the support to the mods and the protection to the streamer's benefits should be further investigated. Additionally, instead of applying the universal mod badge, the live

streaming system can consider multi-level moderation badges to indicate mods' experiences from the factors in this study and match their mod status with corresponding power in the moderation team (e.g., red color badge for senior mod, orange color for junior mods, and green color for new mods).

5.4 Limitations and Future Work

There are several limitations to this study. Since most adjusted R^2 s are comparably low, we should be cautious to explain the data and generalize the findings broadly. Future work should increase the sample size or other quantitative methods to validate our findings before generalization. Prior work shows that the history, policy, or culture of platforms might also influence mod's perceived roles and responsibilities [57], indicating the potential difference between conflict management styles and their relationships with types of conflict and commitment. Future work may consider platform or context-focused studies to enrich the understanding of relationships in this study (e.g., mods' conflict and management styles in live commerce such as live concerts and esports). Second, we only considered the conflict and management styles from the mods' view. We don't know how streamers as team leaders perceive the conflict and whether they would apply different styles. Previous work suggests that subordinates using an obliging style with supervisors experience more interpersonal conflict, but supervisors using an integrating style with subordinates experience more interpersonal conflict as well [70]. Future work can investigate conflict management from the streamers' perspective. Fourth, we do not consider the antecedents of conflicts such as cultural and language differences [5, 27, 31, 64] and other factors, such as informational, social, and value diversity, in our analysis [39]. They can significantly affect different types of conflict, which requires future work. Lastly, we only asked conceptual questions about these measures to reflect mods' perceptions. Future work can consider collecting behavioral data, such as actual instances of conflict compiled from a moderation log at scale, to validate these findings.

6 CONCLUSION

In this work, we aimed to understand mod's conflict with management styles and how mods' commitment to the streamer affects their conflict management styles in live streaming communities. In general, mods perform more active and cooperative styles (obliging and integrating) than passive and assertive styles (avoiding and dominating) to manage conflict with streamers. Mods who have strong commitments to streamers would manage conflict with styles showing more care to streamers and less to themselves. The findings provide a nuanced understanding of conflict in the community moderation team and can be potentially generalized to live streaming communities or new forms of media or other platforms applying a similar governance structure. This research can also potentially foster productive relationships between community mods and admins and help them build effective moderation teams.

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A MAIN VARIABLES AND MEASURES IN THE SURVEY

Moderation experience variables

How long have you been in the live streaming communities (watching, streaming, or moderating)?

- Less than 1 year
- 1-2 years
- 2-3 years
- 3-4 years
- More than 4 years

How long have you been a mod in live streaming communities in general?

- Less than 1 year
- 1-2 years
- 2-3 years
- 3-4 years
- More than 4 years

How many hours do you moderate every week on average?

- 0-12 hours
- 12-24 hours
- 24- 36 hours
- 36-48 hours
- More than 48 hours

How active do you interact with viewers?

- Never
- Not Very Active
- Somewhat Active

- Very Active

How active do you moderate the chat?

- Never
- Not Very Active
- Somewhat Active
- Very Active

Main variables

As a moderator, please think about how you **handle the conflict** with the streamer and rate the following statements:

Management style - integrating (1= Strongly disagree, 5= Strongly agree)

I try to investigate an issue with the streamer to find a solution acceptable to us.

I try to integrate my ideas with those of the streamer to come up with a decision jointly.

I try to work with the streamer to find solutions to a problem which satisfy our expectations.

I exchange accurate information with the streamer to solve a problem together.

I try to bring all our concerns out in the open so that the issues can be resolved in the best possible way.

I collaborate with the streamer to come up with decisions acceptable to us.

I try to work with the streamer for a proper understanding of a problem.

Management style - avoiding (1= Strongly disagree, 5= Strongly agree)

I attempt to avoid being “put on the spot” and try to keep my conflict with the streamer to myself

I usually avoid open discussion of my differences with the streamer.

I try to stay away from disagreement with the streamer.

I try to keep my disagreement with the streamer to myself in order to avoid hard feelings.

I try to avoid unpleasant exchanges with the streamer.

Management style - dominating (1= Strongly disagree, 5= Strongly agree)

I use my influence to get my ideas accepted

I use my authority to make a decision in my favor

I use my expertise to make a decision in my favor.

I am generally firm in pursuing my side of the issue.

I sometimes use my power to win a competitive situation .

Management styles – obliging (1= Strongly disagree, 5= Strongly

agree)

I generally try to satisfy the needs of the streamer.

I usually accommodate the wishes of the streamer.

I give in to the wishes of the streamer.

I usually allow concessions to the streamer.

I often go along with the suggestions of the streamer.

I try to satisfy the expectations of the streamer.

Management style – compromising (1= Strongly disagree, 5= Strongly agree)

I try to find a middle course to resolve an impasse.

I usually propose a middle ground for breaking deadlocks.

I negotiate with the streamer so that a compromise can be reached.

I use "give and take" so that a compromise can be made.

As a moderator, please think about your experience with the **streamer** and rate the following statements:

Continuance commitment to the streamer (1= Strongly disagree, 5= Strongly agree)

I am sure that there are other channel where I could find the similar streamer and content that I get at this channel. [r]

I keep staying with this streamer because there are few alternative streamers available.

If I stopped working with this streamer, it would take me a long time to find a streamer that could replace it.

There are very few other places where I could find the kind of useful content and services that I get from this streamer.

The streamer and content of this channel is too valuable for me to stop staying.

Normative commitment to the streamer (1= Strongly disagree, 5= Strongly agree)

I feel an obligation to continue staying with the streamer.

I would feel guilty if I stopped staying with the streamer now.

This streamer deserves my loyalty.

I keep staying with this streamer because I have a sense of obligation to him/her.

I stay with the streamer partly out of a sense of duty.

Affective community commitment to the streamer (1= Strongly disagree, 5= Strongly agree)

I feel like a part of the group of this streamer.

I have a real emotional attachment to this streamer.

This streamer has a great deal of personal meaning for me.

I feel a strong sense of belonging to this streamer’s network.

I feel a strong connection to this streamer.