foundry10

How Youth Can Build Social and Emotional Skills with Tabletop Role-Playing Games

Research findings and actionable insights

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Executive Summary

The COVID-19 pandemic has had a deep impact on youth's stress levels and social opportunities, creating increased need for creative ways to support the development of youth's social and emotional learning (SEL) skills (Courtney et al., 2020; Golberstein et al., 2020; Liang et al., 2020; Pitt et al., 2021). Tabletop role-playing games (TTRPGs), such as Dungeons & Dragons, are examples of spaces where play is used for learning, as they allow players to build their own characters and inhabit them in a complex game of make-believe. While anecdotal evidence of the benefits of TTRPGs has existed for decades, empirical research is still somewhat sparse (Arenas et al., 2022; Cook et al., 2017; Henrich & Worthington, 2021; Ruff, 2021).

During the COVID-19 pandemic, Game to Grow partnered with foundry10 to evaluate the social and emotional learning that occurred in their TTRPG programs for youth. Game to Grow is a nonprofit organization that uses TTRPGs like Dungeons & Dragons to encourage the development of five core SEL capacities in youth ("The Game to Grow Method," n.d.). In this study, we examine video recordings from eight of Game to Grow's virtual TTRPG sessions conducted between 2020 and 2021 to better understand how youth collaborated, what SEL skills youth practiced and developed, and what role facilitators played in the sessions. Our analysis focused on answering two main research questions:

◆ What group problem solving behaviors and SEL skills (i.e., self-regulation, perspective-taking, communication, collaboration, and imaginative play) do youth exhibit in an online TTRPG program?

◆ Do group problem solving and SEL behaviors change over time?

To answer these questions, we developed a qualitative coding scheme based on facilitator actions and collaborative player behaviors using the Game to Grow facilitation guide and training materials, as well as other codes that were developed throughout the coding process. We examined two sessions from each of the four groups (eight sessions total): one from the beginning of the 10-week weekly campaign, and one from the end.

Through our coding process, we found that as each group progressed through the adventure, youth had opportunities to practice various SEL skills as they developed their intra-group connections and knowledge and worked to solve the problems presented in the campaign. Additionally, players began to interact with each other more over the course of the sessions, though only moderately. They quickly learned each others' abilities, had inside jokes, and demonstrated a deeper understanding of their characters' motivations, strengths, and flaws as the campaign progressed.

Key Takeaways

The findings in this report focus on two larger themes. First, *Youth development of SEL skills* (p. 10) reports how youth practiced the SEL skills of regulation, collaboration, planning, perspective-taking, and pretend play by taking on different group roles, learning from conflicts that arose, and working together as a team. Second, *Facilitator as game master, storyteller, referee, and teacher* (p. 14) captures the different roles group facilitators adopted to successfully guide youth through the campaign and develop their SEL skills. From these results, we derived four key takeaways for practitioners and researchers:

01 Facilitators play a critical role:

Facilitators set the tone and provide explanations, guidance, and scaffolding that are critical for youths' skill development and TTRPG experience.

02 Interpersonal conflict can be productive for youth SEL skill development:

Though it can seem scary or counterproductive, interpersonal conflict in TTRPGs can actually provide a valuable opportunity for youth to practice their SEL skills.

03 With the right supports, youth can engage in complex reflection:

With scaffolding, youth demonstrate a great deal of introspection and reflection on their teamwork and individual strengths and weaknesses.

04 TTRPGs provide a sandbox in which youth can learn and make mistakes:

TTRPGs provide a safe and controlled environment for youth to practice key SEL skills, allowing them to make mistakes without serious repercussions.

This preliminary work develops some key themes and groundwork for future studies, such as longer-term explorations of the impact of TTRPGs on youth, and how facilitators might increase youth participation, engagement, and leadership in sessions.

Introduction

"Roll for initiative!" Dice hit the table, either physically or virtually, as our young adventurers prepare for battle. Their calm evening of eating soup in a tavern has been destroyed by a mysterious figure in black armor, who summons skeletons and stabs the tavern owner with a poisoned dagger. How will our heroes get through this one?

The COVID-19 pandemic has had a deep impact on youth's lives (Courtney et al., 2020; Golberstein et al., 2020; Liang et al., 2020; Pitt et al., 2021). With the increased stress and loss of social opportunities that youth have experienced, there's more need for creative ways to support the development of youth's social and emotional learning (SEL) skills. SEL refers to the development of skills such as self-awareness, self-management, responsible decision-making, relationship skills, and social awareness (*What Is the CASEL Framework?,* n.d.).

Tabletop role-playing games (TTRPGs), such as Dungeons & Dragons, are examples of spaces where play is used for learning, as they allow players to build their own characters and inhabit them in a complex game of make-believe. The increased availability of online tools and materials (such as D&D Beyond, Roll20, and more) has also greatly increased access to TTRPGs, bringing in a more diverse player base and more young players than ever.

Researchers and practitioners have leveraged the fun and imagination of play to teach SEL skills in the safety of a make-believe world (Hromek & Roffey, 2009; Ruff, 2021). Role-play techniques have been used in therapeutic approaches for decades, allowing participants to express feelings and work through concerns using creative expression (Kipper & Ritchie, 2003).

For example, researchers at foundry10 have studied how dramatic arts exercises can help kindergarten students practice recognizing emotions in others and using self-control to manage their own behavior (Frost et al., 2019).

These make-believe worlds are useful spaces for youth to develop these skills, as the ludic game space often has more concrete, easier to understand rules than the complex ecosystem of the "outside" world. Games can provide a type of sandbox testing environment for youth to try new things and learn from mistakes with a degree of separation, which can lead to increased insight and perspective-taking (Bowman, 2010; Daniau, 2016).

What Are Tabletop Role-Playing Games?

Players create their characters and use them to interact with a rich fictional environment. The group uses a set of formal rules to guide their experience, creating a collaborative story of exploration and adventure. One of the most popular tabletop role-playing games (TTRPGs) is Dungeons & Dragons.

While anecdotal evidence of the benefits of TTRPGs has existed for decades, empirical research is still somewhat sparse (Arenas et al., 2022; Cook et al., 2017; Henrich & Worthington, 2021; Ruff, 2021). Though the use of TTRPGs in learning and therapeutic applications is not as widely recognized, recent research indicates that TTRPGs are potential sites for learning skills such as assertiveness, conflict resolution, emotional regulation, communication, and how to interact socially (Abbott et al., 2022; Henrich & Worthington, 2021; Zheng et al., 2021).

Community Partner

Game to Grow is a nonprofit organization that uses TTRPGs like Dungeons & Dragons to help youth who may have trouble socializing and building community. The organization trains facilitators in a game facilitation style that aims to encourage the development of social and emotional learning skills by emphasizing a set of core capacities ("The Game to Grow Method," n.d.). These core capacities include **regulation, collaboration, planning, perspective, and pretend play.**

In each session with youth, group facilitators provide structured story narratives that allow youth to practice behaviors through a character, collaboratively build a fantasy world, and develop interpersonal skills through interactive play. Group facilitators control the pacing of the story, dynamics between characters, and character development with the goal of helping youth develop in the five core capacities. These sessions have the potential to support youth's social and emotional development during a time that has been particularly trying for them.

This Study

During the COVID-19 pandemic, Game to Grow partnered with foundry10 to evaluate the social and emotional learning that occurred in their TTRPG programs for youth. In this study, we examine video recordings from eight virtual TTRPG sessions conducted between 2020-2021 in partnership with Game to Grow in order to better understand how youth collaborated, what SEL skills youth were developing, and what role facilitators played in the sessions. From these data and the core capacities and goals of Game to Grow, we derived the following research questions:

◆ What group problem solving behaviors and SEL skills (i.e., self-regulation, perspective-taking, communication, collaboration, and imaginative play) do youth in an online TTRPG program exhibit?

  - Which of these behaviors are spontaneous and which are prompted by the group facilitator?

  - Are there differences in the behaviors facilitators show and the behaviors youth players show?

◆ Do group problem solving and SEL behaviors change over time?

  - Do youth exhibit more group problem solving and SEL behaviors in later sessions versus in earlier sessions?

Method

This study is part of a larger partnership between Game to Grow and foundry10 examining the impact of TTRPGs on SEL skill development during the COVID-19 pandemic. We focused on the video recordings from the sessions, drawing on qualitative case study methods, interaction analysis, and emerging themes to analyze the data (Boyatzis, 1998; Clarke & Braun, 2014; Hall & Stevens, 2015; Jordan & Henderson, 1995; Williams & Moser, 2019). This study was approved by the foundry10 Institutional Review Board (IRB) and also complied with Game to Grow's rigorous youth safety and privacy protocols.

Adventure Structure

Each group took part in a 10-week adventure where youth participated in weekly 90-minute online sessions with a Game to Grow staff member as the facilitator. There were four groups, with approximately four youth in each group. The goal of each session was to build the SEL skills of self-regulation, perspective-taking, communication, collaboration, and imaginative play. Each session had three parts to further that goal:

1. **Check-In:** After youth logged onto the video conferencing platform (Zoom), the facilitator would ask participants a check-in question to start the session. If players answered the question both in and out of character, they would earn a bonus token, which could be used to further the group's adventure by helping another participant to re-roll in a critical moment.

2. **Gameplay:** During the gameplay portion, facilitators guided youth through the story, allowing youth to collaboratively solve puzzles with social and strategy components through their in-game characters.

3. **Check-Out:** At the end of the session, there were three check-out questions that asked participants to spotlight another player or their character, reflect on a challenge or something they learned during the session, and share a hope or prediction for what they thought might happen next time.
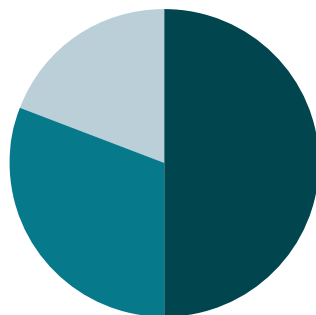
Participant Gender Identity
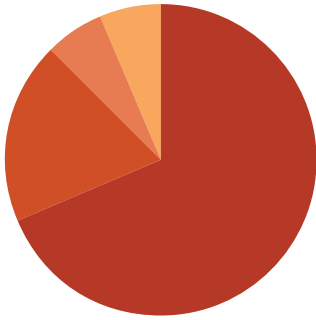
- ■ Identified as boys - 68.75%
- ■ Identified as girls - 18.75%
- ■ Identified as non-binary - 6.25%
- ■ Chose not to disclose - 6.25%

Participant Race
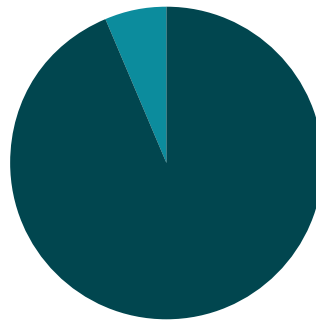
- ■ Identified as white - 93.75%
- ■ Identified as multiracial - 6.25%

Participant Grade Level

- ■ Grade 7 - 50%
- ■ Grade 6 - 31.3%
- ■ Other grades - 18.7%

Participants

Sixteen youth participated in the observational portion of the study (four youth per group). The youth in this study were specifically recruited by Game to Grow from Title I schools to increase the likelihood of providing services to participants who might otherwise have less access to such resources. This sample demonstrated less distress at intake than the typical therapeutic audience with which Game to Grow usually works.

Though the original aim of this study was to observe the experiences of youth who participated in weekly in-person sessions with Game to Grow at schools in the greater Seattle area, these extracurricular activities were canceled due to the COVID-19 pandemic. The program then transitioned to virtual sessions and recruitment shifted to include schools outside of Washington state. This provided an opportunity for us to examine the program's impact on youth during the pandemic.

Analysis

The research team analyzed a subset of the sessions for each group. We conducted a case study across four groups of youth, exploring two sessions per group (one towards the beginning and one towards the end of each group's campaign, for a total of eight sessions). We used qualitative coding, drawing on video interaction analysis from the learning sciences to identify major themes (Boyatzis, 1998; García-Montoya & Mahoney, 2020; Hall & Stevens, 2015; Jordan & Henderson, 1995; Merriam, 2009; Miles & Huberman, 1994).

Interaction analysis is a method from the learning sciences that involves examining video data in great detail to explore the interactions between participants in a holistic manner (Hall & Stevens, 2015; Jordan & Henderson, 1995). This type of analysis allowed us to do a deep dive into the play space of each group of youth and closely examine the group's interactions and decision making.

We worked to create a flexible codebook that could capture important aspects of the video data, including the group regulation, the SEL behaviors of youth, and the guiding actions of the facilitator.

In developing the codebook, we drew heavily on two main sources: Kwon et al. (2014) and the Facilitator's Guide from Game to Grow's Critical Core materials (*Critical Core - Home*, n.d.). The work of Kwon and colleagues (2014) provided some initial group regulation actions, while the Facilitator's Guide provided an outline of the main types of facilitation actions we were likely to see in the sessions.

Along with these behaviors, excerpts were also coded for who was speaking, who prompted the action or dialogue, what part of the session the action occurred in (check-in, gameplay, or check-out), and whether or not the code occurred in or out of character (footing). This codebook was developed iteratively by several researchers (see *Appendix A* for full codebook).

Once the codebook was fully drafted, three members of the research team coded the sessions using consensus coding rather than calculating interrater reliability as a statistic (McDonald et al., 2019). Each transcript was coded by two coders, one as the primary coder and one as the secondary coder. The coding team met weekly to address points of confusion and discuss any emerging themes.

Results

The results in this report focus on two larger themes from video analysis of the sessions. First, *Youth development of SEL skills* reports how youth practiced the SEL skills of regulation, collaboration, planning, perspective, and pretend play by taking on different group roles, learning from conflicts that arose, and working together as a team. Second, *Facilitator as game master, storyteller, referee, and teacher* captures the different roles group facilitators adopted to successfully guide youth through the campaign and develop their SEL skills. All names and character names provided are pseudonyms.

Youth Development of SEL Skills

Group roles

The group dynamics and different roles that each youth had in the group impacted what the sessions looked like for each of the groups and how they collaborated during the gameplay. In some of the groups, one player tended to take the role of leader, becoming the group's voice of reason who helped coordinate tasks. This was often one of the older youth in the group or one who had more experience with Dungeons & Dragons.

In some cases, having one youth take the lead caused friction between the players. At other times, the other players seemed relieved or reassured when someone stepped up as leader to provide a specific direction or goal for the group. For example, two of the youth expressed regret that another youth was not able to make that week's sessions and that they missed his leadership:

Kevin: These times [inaudible] when **I wish Christopher was here.**

Lucas: **Yeah, because he always takes the chance and goes first.**

Facilitator: Well I appreciate you saying that. I think if Christopher does show up today, which I hope he will, I hope you tell him that, that "oh gosh he wasn't here and we missed him because he's so much a leader in the beginning parts of our day."

Some groups had natural leaders that emerged. Taking on a leadership role required youth to practice SEL skills like regulation, perspective taking, and collaboration. The youth who took on more of a leadership role shaped the dynamic of each group–sometimes their leadership led to increased conflict, and other times it provided the group with direction that helped them plan how to strategically navigate the campaign. Though all of the groups followed the same general story plot, the dynamics of each group were extremely varied, with each group finding their own ways through the challenges presented by the adventure.

Interactions with NPCs

Interactions with non-player characters (NPCs) in the story allowed participants the opportunity to practice their perspective-taking skills and deepen their experience of imaginative play. Players displayed different levels of engagement with being in character and interacting with NPCs.

For the players who were more immersed in the world of the campaign, they quickly became attached to NPCs who appeared in the story. For example, some participants became protective of the NPC Seamus, the owner of the soup tavern. When his soup tavern was attacked by skeletons in the story, one of the participants yelled, "you're not killing my soup man!" at the assailants. Youth also felt empathy and care for nameless NPCs. For instance, some participants used their turn to make sure that the other tavern patrons were not harmed or traumatized by the skeletons.

While some players showed great care toward the NPCs, other players seemed to have less regard for them. Some participants even attempted to pickpocket them, knock down their doors, and steal what they needed from them. These attempts to harm the NPCs were often a source of conflict between the participants. At one point in the story, the players need the help of a potion maker. When participants tried to threaten or intimidate the potion maker, other participants often objected to their methods.

Learning from Conflict

Conflicts were common in each of the groups, and they presented an opportunity for youth to practice their group process and SEL skills, including regulation, perspective, and collaboration. The type of conflict that occured differed depending on the situation, group, and stage of the game. Initial conflicts were often just two players squabbling with each other. For example, in an early session, two characters began a conflict trying to one-up each other:

> Giselle (Abigail's character): Excuse me. I just backed-flipped and stabbed a skeleton in the head. Thank you very much.
>
> Jubal (Justin's character): I can do that too. I can do a double backflip with that stabbing...
>
> Giselle: I'm way taller than you. I'm an elf, I could probably do it better...
>
> Jubal: We need to have a backflip competition.
>
> Giselle: We do.
>
> Jubal: Okay. Let's do a double backflip and then stabbing the floor.
>
> Giselle: I will do a triple backflip, throw my daggers and cut the floor.
>
> Jubal: I will do a quadruple backflip and then fire my longbow.

After an extensive backflip competition and some verbal sparring, these two players eventually came to a resolution mediated by the facilitator. A somewhat-friendly rivalry remained, with one of the players even thanking the other for going along with the over-the-top bickering, even if it exasperated some of the other players. Although the conflict initially seemed counterproductive, it allowed the two youth to express their emotions and to have fun bantering with each other.

Interpersonal conflicts between players later in the campaign were more substantial, and thus provided greater learning opportunities for participants. These conflicts were more about the group's strategy and gameplay, such as disagreements over decisions made during combat sequences. Players often expressed strong emotions during these moments of conflict, which allowed them to work through their thoughts, get a better understanding of what their teammates were thinking and feeling, and reflect on how they could collaborate better as a group moving forward.

For example, a conflict emerged in one group where Alyssa thought that Kevin's character made a poor combat choice, but they did not express their objection to Kevin's action clearly. When Kevin's character Fox inevitably failed, the facilitator explained how this conflict can lead to a teachable moment for Alyssa about communicating her thoughts more clearly:

Facilitator: There's Fox [Kevin's character] being pulled around like this [after Fox was caught by a monster in combat].

Lucas: Yeah, whatever. He was the one who was dumb enough to go near it [the monster].

Alyssa: That's kind of how I feel too.

Facilitator: **Oh, well, I think there's a valuable lesson here for Makayla [Alyssa's character] who is maybe instead of her saying, "Well, maybe you shouldn't do that," she should have said, "Don't do that." Maybe that's a lesson for Makayla.**

Moments of conflicts also presented an opportunity for youth to practice their regulation and perspective skills by expressing their emotions and explaining their feelings to each other. Doing so ultimately contributed to their ability to collaborate. In one example towards the end of Session 9, Ethan brought up some frustrations they had with Grant about their reluctance to give their bonus token to Ethan earlier in the session. The facilitator paused here and took a moment to teach the group how disagreeing with each other can actually strengthen their collaboration and teamwork:

Ethan: I'm mad at you because, when I was about to die, you were like, "Hmm, should I really give you my bonus token?...

Grant: You were literally jumping off a cliff! Why would I give you my bonus token?

Facilitator: So this is important. **This is an important conversation for us to have about how do we support each other, both in terms of what do we do in the game, but also how do we support each other in those moments where we hear each other's ideas and validate them as much as we want to validate those ideas without necessarily going along with them. This is how teams work. This is how teams are formed.**

So you guys are exactly in the right spot right now for this kind of conversation. It is teams that can work together well, or teams that can be frustrated with each other. Teams that can say, "Hey, I didn't like it when you did that." And then you say, "Yeah, you're right. And I still did it anyway, and that's what we're going to do, because we're a team."

Though conflict could initially seem like a negative thing, youth were able to learn from the interpersonal conflicts that arose in each session and practice their regulation, collaboration, and perspective skills. TTRPGs provide a safe and separate space for youth to work through moments of conflict in a testing ground so they can better navigate conflict in real life interactions. Many of the conflicts that occured actually led to better teamwork as youth came to better understand themselves and each other.

Teamwork

As youth went through the sessions and navigated the obstacles that arose in the adventure, they were able to reflect on the process and strengthen their planning and collaboration skills. They demonstrated a high level of introspection about their teamwork abilities and the challenges that came with making difficult decisions. For example, in an earlier session, one player reflected on how difficult it was for the group to come to a decision about what to do after Seamus, the owner of the soup tavern, was stabbed:

Facilitator: What is something that was challenging or something you learned today, Joshua?

Joshua: **Something that I learned, or something that was challenging was all of us conversing and picking what the right thing to do was in that situation.**

Participants demonstrated greater planning and teamwork skills as they became more familiar with the game, their character, and their teammates. Throughout the sessions, players developed better understandings of each other's strengths by figuring out who had access to which spells, remembering which skills the other players had, etc.

As the groups advanced through the game and became more aware of each other's skills, they were able to develop better tactics and strategies for overcoming obstacles in the campaign.

In the later sessions, players were more fully immersed in imaginative play and took the planning seriously as their investment in the adventure deepened. Several players realized that it was difficult to accomplish certain things solo and that they had to try to collaborate more with the group, rather than going off on their own:

George: **I would say one piece of advice I would give Hunter [George's character] is probably not like...to make sure to work together instead of doing solo choices**, because that's what I did last time we played. I was making so many individual tricks because everyone else was like, "No, I want to do this." I was on the sidelines, but I wasn't as mad. I was just like, "Okay. You have fun arguing, I'm just going to make these choices."

These revelations led to increased collaboration and planning between the youth in each group. Whereas before the youth were acting on their own, they began better coordinating and strategizing with each closer to the end of the campaign. For instance, at the end of one session, a group started discussing a unified attack that they planned to use against a witch they encountered. The entire group was so excited about strategizing together that they decided to meet up on their own time to continue planning for next week's session:

> Abigail: That means we just need to wound her [the witch] quickly enough, before she can get away.
>
> Justin: **Is it possible that we could do an attack just all at once, where we can all just use one thing at once?**
>
> Facilitator: If you can coordinate it together, then yeah.
>
> Justin: We can do that.

The facilitator then left the Zoom session to let them plan, and the players discussed the various abilities they had at their disposal before continuing the conversation elsewhere. As the players built their collaboration skills and were better able to understand each other, they strengthened their bond as a group. The later sessions showed much more evidence of group bonding, with players expressing regret that the sessions were coming to an end and excitement that many of the same players were returning for the next session of the program. As the participants reflected on how when they worked together, they realized they could accomplish incredible things and live out their epic adventurer fantasies:

> Joshua: **Something that I learned today was that we are actually kind of cool as a team.** When two of us are just joking around and the other two are being serious, it's not very fun. But when we're all in the roleplay mood…We're an epic team, blowing stuff up and killing monsters and stuff.
>
> George: And being wholesome every now and again.
>
> Joshua: Yeah.

The team structure of the sessions allowed youth to practice SEL skills like collaboration and planning. Though youth often found it difficult to work together and come to a consensus on the best way to move through the adventure, they ultimately came together as a team and were able to strengthen their collaboration skills. As the players became more immersed in their characters and the pretend play, they realized the value of teamwork and began to act more as a unit rather than as a collection of individuals.

This increased planning and teamwork that developed across the sessions as the groups strategized, fought, and defeated monsters together enabled the groups to further bond with each other. By the later sessions, many of the groups showed increased group bonding, inside jokes, and group awareness.

Facilitator as Game Master, Storyteller, Referee, and Teacher

Along with youths' group process and SEL behaviors, we examined how the group facilitator led their group of youth in each session. We found that facilitators took on multiple roles, such as game master, referee, storyteller, and teacher in order to fully support the youth and their SEL skill development. For example, some of the participants were familiar with TTRPGs like Dungeons & Dragons, while others were brand new to the game. For youth that were new to the game, facilitators took on an active role as game master to ensure that all participants understood the rules and had an equal opportunity to participate.

Similarly, facilitators acted as the storyteller for the group, weaving a story for the youth to follow while allowing opportunities for participants to direct the story in later sessions. Finally, facilitators managed conflicts between youth by acting as a referee and encouraged youth to reflect on important moments by stepping into more of a teaching role.

Game Master

In the early sessions, facilitators spent a lot of time acting as the game master to help the game run more smoothly in the later sessions. Facilitators provided information early on to make sure that youth understood the complex rule systems of the game. As game master, the facilitator often helped youth set up their character profiles and change their character names if desired, while also encouraging them to settle on a character now so they could be immersed in their character in the following sessions.

From the beginning, facilitators also supported the development of youths' collaboration skills in their role as game master. For instance, facilitators told youth at the beginning of each session that participants could earn a "bonus token" if they answered the check-in question both in and out of character. The bonus token could then be used to help another member in their group re-roll the dice at a critical moment in the campaign.

When one player asked why the bonus token had to be used for another player and could not be used to re-roll the dice for themselves, the facilitator explained that the bonus tokens were meant to encourage collaboration and help them succeed as a team:

Facilitator: You answer the bonus to get the bonus, to use to have someone else re-roll their dice…**Keep in mind that the game of Dungeons & Dragons is a collaborative fellowship game, such that if the team succeeds you succeed, and if you succeed the team succeeds.** And that is one of the things I'm hoping you take away with our playing together, as you will think about, it does seem like why am I answering if it's only for someone else? That, my friend, is because I'm hoping you will answer it, and then be able to use that bonus token for somebody else, because they are going to help you fight monsters, maybe even today.

Facilitators acted as game masters both to help youth with the logistics of playing Dungeons & Dragons and to leverage aspects of the game to support the development of youths' collaboration and teamwork skills.

Storyteller

One of the primary functions of the facilitator was to help guide youth through the adventure as the storyteller. At the beginning, facilitators took charge of the storytelling and mainly helped youth make actions and decisions within the bounds of the story they created. However, as the sessions progressed, the participants showed greater familiarity with the game and were more acquainted with their characters. In the later sessions, we saw the facilitator creating openings in the story for youth input by asking more probing questions, helping the participants level up their characters, and letting the youths' actions in the campaign begin to bring this chapter of the story to a conclusion.

Facilitators also used storytelling to encourage perspective-taking and deepen youths' engagement in the pretend play. A key example of this was the check-in question facilitators asked in Session 9, which was "What advice would you give to your character?" The exchange below between a facilitator and a youth is an example of how this check-in question allowed youth to become closer to their characters and to reflect on their actions with a degree of separation:

> Facilitator: **The check-in question is what advice would you give your character? The bonus is**...How would their life be different if they took that advice, if they learned that lesson from you as you are the source of infinite wisdom for them because you play them? How would their life be better? And they don't have to take this advice also. There's no requirement here that they do that because sometimes playing a character who makes lots of reckless decisions is fun. You don't necessarily want to give them that.
>
> George: You [their character] remind me of me just like...Screw it, I'm jumping over!
>
> Facilitator: **But this is all the part of the purpose of reflection and thinking about our characters and who they are and who we are and the wisdom that we have,** because if you say like, well, the advice is make more plans before jumping over a chasm, maybe that's true and probably good advice and maybe you struggle with that and maybe your character struggles with that and that's why it's good advice.

By helping youth elaborate on the story and characters during game play, game masters facilitated youth engagement and learning from the sessions.

Referee

Another role that facilitators commonly took was that of referee. During the sessions, participants often had disagreements with each other, leading to conflict. Facilitators mediated these conflicts between players by allowing them to happen but requiring the players to ultimately resolve their disagreement. For example, when a conflict happened between two players, the facilitator explained that while it is natural for them to have disagreements with each other, they needed to find a way to continue to work together:

> Facilitator: **I strongly encourage you to be arguing with each other in character while you're...running through and attacking skeletons or whatever. At the end of all of this, you have to be on a team together.** You're going to need to find a resolution together as players at the table for your characters. Why are you going to continue to work on a team together? Maybe that's, you forgive the other person, maybe that is, you don't forgive them, you're watching them, but you're willing to go along with them because this is more important. Whatever the case may be, you really need to decide for your character, why you're sticking around, even though this other person and you were clearly not getting along.

In their role as referee, facilitators guided youth through conflicts, letting them express their thoughts and emotions when they did have disagreements with others while encouraging them to find ways to continue to collaborate with each other even in the face of conflict or differing opinions.

Teacher

Finally, facilitators also took on the role of teacher for the youth. When a conflict resolved or an important moment in the session happened, the facilitator would pause and turn it into a teachable moment. An instance of this happened in one of the later sessions, when the youth in a group started asking for each other's ideas instead of pushing their own. The facilitator awarded the youth who asked this question with an "inspiration point" to celebrate this momentous action of collaboration and teamwork. The inspiration point could be used to reroll the dice in a critical moment of the game:

> Facilitator: There was this moment. This is, I think, the first time this has happened in the nine weeks of playing together. **Joshua says, "Who else has an idea?" I believe this is a moment to be celebrated**. So much so, Joshua, that I'd like to offer you an inspiration point for that moment. Because, I know we've all been wanting, wanting, wanting to be the person who does the thing. At this point, Joshua says, "Who else has an idea?"

As game master, storyteller, referee, and teacher, facilitators took on various roles in the sessions in order to best guide youth through the campaign and to support the development of their group process and SEL skills.

Discussion

In this study, we provide some preliminary insights into the development of SEL skills such as regulation, collaboration, planning, perspective taking, and pretend play via TTRPGs for youth. Our findings indicate that youth quickly develop a sense of community and do their best to work together, though youth do not demonstrate some of the more complex conflict resolution, problem solving, and teamwork behaviors until later sessions.

The behavior modeled by the facilitators provides a jumping-off point for the youth, demonstrating how to engage in positive collaboration with their peers. By examining these sessions through a group process and SEL-focused lens, we noted how youth developed their SEL skills throughout the program, the various strategies that the youth took, and how they adapted to each other's strengths to best collaborate with each other.

While these results are preliminary, the findings suggest that TTRPGs are valuable for developing SEL skills such as regulation, collaboration, planning, perspective taking, and pretend play. From these results we derive four key takeaways for practitioners and researchers:

1. **Facilitators play a critical role:** Facilitators set the tone and provide explanations, guidance, and scaffolding that are critical for youths' skill development and TTRPG experience.

2. **Interpersonal conflict can be productive for youth SEL skill development:** Though it can seem scary or counterproductive, interpersonal conflict in TTRPGs can actually provide a valuable opportunity for youth to practice their SEL skills.

3. **With the right supports, youth can engage in complex reflection:** With scaffolding, youth demonstrate a great deal of introspection and reflection on their teamwork and individual strengths and weaknesses.

4. **TTRPGs provide a sandbox in which youth can learn and make mistakes:** TTRPGs provide a safe and playful environment for youth to practice key SEL skills, allowing them to make mistakes without serious repercussions.

Key Takeaways

Facilitators play a critical role
A key takeaway from our findings is that facilitators play a critical role in youths' TTRPG experience by setting the tone and providing explanations, guidance, and scaffolding that are essential for helping youth navigate through the campaign and develop their SEL skills. Though facilitators in a TTRPG game like Dungeons & Dragons traditionally only take on the role of game master and storyteller, we observed facilitators taking on the additional roles of referee and teacher.

While these additional roles were not necessary for guiding youth through the story, they were critical in helping the youth develop their SEL skills. Facilitators helped youth through conflicts as referees and ensured that youth learned from important moments as teachers. This tone setting from facilitators also helped to create a safe space where youth felt comfortable expressing their emotions, engaging in disagreements with each other, and reflecting on their own strengths and weaknesses.

Interpersonal conflict can be productive for youth SEL skill development
Throughout the sessions, we saw youth getting into various conflicts with one another. While conflicts between youth were sometimes just minor disagreements, oftentimes conflict was rich and provided youth an opportunity to practice expressing their emotions, better understanding each other, and strengthening their teamwork. Though conflict can seem scary or counterproductive, a takeaway from this study is that conflict can actually be beneficial for youths' SEL skill development.

Being able to learn conflict resolution and problem solving in an imaginative sandbox environment allows youth to tackle difficult decisions and complex emotions in a mediated space.

With the right supports, youth can engage in complex reflection:
Though younger youth are still at the age where they are developing the skills necessary for complex reflection, strategy, and social interaction, youth in our study demonstrated a great deal of introspection and reflection on their teamwork and individual strengths and weaknesses. All of the participants were between 10-14 years old, which is a common age for youth to begin playing TTRPGs.

At this developmental stage, they are still learning how to balance responsibilities and relationships, and support and scaffolding are often needed in order for youth to do certain complex decision making and reasoning tasks successfully (Davis & Weinstein, 2017; Erikson, 1968, 1980). We saw facilitators provide this careful scaffolding and explanation by allowing youth to make their own decisions while gently guiding them to work together and make progress toward furthering their campaign. Other facilitators of TTRPGs can use similar support tactics to help youth engage in this complex reflection, planning, and learning process to develop their SEL and group process skills.

TTRPGs provide a sandbox in which youth can learn and make mistakes: Finally, the results from this study suggest that TTRPGs can provide a structured way for youth to practice key social skills and make mistakes without serious repercussions. The imaginative world of TTRPGs creates a degree of separation from the real world, allowing youth to learn and grow in a low-stakes environment. As education moves towards more creative forms of learning—focusing on projects, play, collaboration, and creativity—there is an opportunity for TTRPGs to be used more broadly as a way to learn about SEL skills like regulation, collaboration, planning, perspective taking, and pretend play, as well as group process skills like problem solving, conflict resolution, delegation, strategy, and more.

This type of learning is critical for all youth, not just for youth with learning or social challenges, particularly given the restrictions that the COVID-19 pandemic has placed on youth interactions over the past two years (Courtney et al., 2020; Golberstein et al., 2020; Liang et al., 2020; Pitt et al., 2021). Game to Grow has recently extended their therapeutic programs to a wider audience, including children in foster care and hospitals.

These types of programs are important because they create a safe and engaging community in which youth can explore the complexities of their emotions and social connections, while also providing important research opportunities that allow us to better understand the wide-reaching impacts of the pandemic on various groups of youth. Researchers and practitioners have the opportunity to leverage the current wave of TTRPG popularity and adapt more materials for educational and therapeutic use with youth. This area of learning is currently under-studied, and we hope that research into this area will continue to expand, allowing more people to engage in this valuable form of play and learning.

Limitations and Future Work

Overall, this study provides rich initial insights into how youth engage in collaborative behaviors during TTRPG sessions. However, this study had a couple of important limitations. First, the sample size was relatively small and somewhat homogenous. Additionally, this sample demonstrated less distress at intake than the participants with which Game to Grow usually works. Further research with larger and more diverse samples (e.g. more diversity in gender, race, ethnicity, etc.) is needed to corroborate and expand on our findings.

Second, though video data is extremely rich, it is limited in explanatory ability, particularly when one cannot share clips directly with the participants and get their perspectives. Future iterations of this study should include more thorough debriefings after sessions with participants, as well as surveys and interviews specifically focusing on youths' SEL and group process behaviors. Since this program was run virtually, future work could also explore whether there are any differences in the program's impact on youth SEL skills with virtual versus in-person sessions.

The program in this study consisted of one 90-minute session per week over 10 weeks. This length aligns with Game to Grow's best practices for Therapeutically Applied Role-Playing Games (TA-RPGS), which recommends that TA-RPG groups operate in an 8-16 week framework. Future research building on this study should include longer-term studies that aim to better understand how group and youth SEL skills continue to grow together over longer campaigns. Given the critical role we saw facilitators play in our study, future work could also explore how different facilitators manage gameplay and what impact facilitator differences have on youth skill development.

Conclusion

Through our work in examining these TTRPG sessions, we found that TTRPGs gave youth opportunities to practice and develop crucial SEL skills and that the facilitator aided youth in developing these skills by taking on various roles in the sessions.

Our preliminary results show that TTRPGs provide a safe space for youth to practice their regulation, collaboration, planning, perspective taking, and pretend play skills. These results have implications for TTRPG practitioners and SEL researchers. Further research and analysis should build on these initial results by providing additional insights into the benefits and applications of TTRPGs in learning and therapeutic spaces for youth.

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Appendix A: Codebook

Game to Grow Observational Study

Category:	Code	Definition	Notes	Example
Group regulation behaviors (adapted for RPGs from Kwon et al., 2014)	G1: Scheduling	Schedule group work, by checking available time or setting sequencing	*Clarification: Will mostly apply in-game, and may not be used that often.*	"You have two days before the festival, what are your plans for winning the pie eating contest?" "We only have two hours before this poison kills him, what do we do?"
	G2: Dividing labor	Divide labors or specify a person's responsibility on a task	*Clarification: May be used during planning things or in the moment during a combat or skill challenge.*	"Well, [the rogue] is really quiet, so they can sneak into the room while the rest of us create a distraction." "You go for the leader, I'll see if I can get that caster away from us."
	G3: Task	Identify tasks to be completed, or acknowledge goals or requirements of a campaign	*Clarification: May also be used in the moment as players declare specific tasks that they need to do*	"So if we want to figure out what's causing the plants to die, we want to check out the fields and talk to the farmers."
	G4: Strategy	Inquire about effective ways to coordinate group process and achieve goals	*Clarification: This includes enacting strategic decisions as well as discussing them, since the original codebook was less live action and more planning. Broader, might pair with G2.*	"What approach do we want to take towards this situation? Are we better at diplomacy? Subterfuge? Force?" "I'm going to do X so that this person can Y and then we can Z (as a collaborative process)."
	G5: Open-self	Share individual strength, weakness, preference, situation to enhance group awareness	*Clarification: After some discussion I think it would be best to apply this when revealing something new/important about the player OR the character, but not just basic discussion of game mechanics.*	"[Character] is easily distracted by shiny objects, but really good at finding things!" "I don't like it when we have to fight, I prefer a more persuasive approach."

Category:	Code	Definition	Notes	Example
	G6: Monitoring group process	Acknowledge group process by checking and sharing what has been done	*May be applied to recaps and summaries, but only when given by the players (as are all G-codes).*	"So we found the cloak and talked to the butcher. I think she's hiding something, but what else do we still need to do?"
	G7: Group agreement	Seek other player's feedback to reach group agreement and to establish group norms	*Can be difficult to identify, but sometimes can be found when a player mentions their plans to the group for feedback*	"I'm getting confused by the crosstalk, let's take a step back and talk one at a time." "How do we want to manage party funds?" "Let's vote on whether or not to head to the castle."
	G8: Evaluation	Evaluate group outcomes and/ or group process	*May sometimes be applicable at the end of a session*	"I'm not sure this way of going after the thief is working well." "We found the stolen doll! That's great!"
Socio-emotional behaviors (adapted for RPGs from Kwon et al., 2014)	SE1: Emotional expression	Express feelings about players and group work, such as thanks, sorry, excitement, worry, etc.	*May overlap with other codes, but should involve strong use of emotional vocabulary or strong intonation/body language in the video*	"Ugh, can you stop trying to steal everything, it's annoying."
	SE2: Encouragement	Encourage others by praising what's done well or by cheering up	*By the players, may include exclamations or small compliments, may be somewhat difficult to identify*	"Oof, rough roll, but you'll get it next time!" "WOW what a cool spell." "Your character is so nice!"
	SE3: Forming sense of community	Share personal issues and/or feeling of belonging resulted in developing social bonding	*This can be so open-ended; need specific guidelines for when this occurs. Clarification: Should specifically address the group of players or characters, by players only. May include in and out of character interactions.*	"I really love hanging out with you all." "Can we play for another hour?" "I had a really bad day at school so this is a great break."
	SE4: Inter-player/intra-group conflict (new code)	Players express specific irritation/ anger/conflict etc. with another player or the group	*Clarification: Added after noting some specific conflict*	"I'm so much better than [other character], look at what I can do." "I try to trip her"

Category:	Code	Definition	Notes	Example
Facilitator strategic actions	F1: Explaining	Explaining a mechanic or activity	*Clarification: Should focus on mechanics or information needed to make a decision. Just mechanics.*	Explaining how leveling up works, or the concept of check-in questions. "Investigation is when you're thoroughly searching, perception is a quick look around to take things in"
	F2: Directing/ guiding	Informing the group of the next thing that will occur/what to do	*Clarification: May be slightly ambiguous, but generally when the facilitator takes control of the direction of the session.*	"Okay, now we're going to do the recap" "Time for a skill challenge!"
	F3: Pausing/ Checking in/ Prompting reflection	Stopping play or the activity in order to get specific information from the players.		"How's everyone feeling? Can I get a thumb-o-meter from all of you?" "Let's consider what might happen if you confront the innkeeper."
	F4: Observing and adjusting	Using observed behaviors as guidance for adjusting play	*Clarification: May be difficult to clearly identify, but may occur after resolving a conflict or noticing frustrated body language/utterances*	Noticing and taking focus off a player who might be feeling overwhelmed, making a combat encounter less difficult by adding an ally, giving a clue to a puzzle, changing the session direction
	F5: Inviting collaboration/ input/roleplay	Asking the players to help shape the world via prompts or choices	*Specific to storytelling/ worldbuilding, but may also apply to encouraging roleplay to increase story immersion*	"What's the name of the tavern?" "What do these people call that mountain over there?"
Other	O1: Other not covered by other codes	Interesting/surprising/ important and not otherwise covered		
	O2: Key moment	Quote or vignette that is particularly strong or relevant to research questions		

Category:	Code	Definition	Notes	Example
Person	P1: DM/GM	Action/behavior done by game master	*Refers to the key person associated with the code(s)*	DM/GM expressing emotion etc. "WOW! That was intimidating!"
	P2: Player	Action/behavior done by player		"Great job, [adventurer]! Now we can get into the cave!"
***Prompt**	PR1: Spontaneous	Action/behavior done without prompting		A player starts strategizing a plan without prompting.
Note: these do not apply to facilitator	PR2: Prompted by DM/GM	Action/behavior prompted by game master		Players reconsider a situation after the GM asks.
	PR3: Prompted by youth	Action/behavior prompted by youth		A player asks the group to agree on a course of action.
	S1: Session start			
	S2: Gameplay			

Category:	Code	Definition	Notes	Example
	S3: Check out and goodbye	Check out questions, any reflections/ concluding remarks		"How are we and our characters feeling about today's session?"
*Character footing	C1: In-character	Speaks as the character, refers to the in-game actions with first person language.	*Refers to the key person associated with the code(s). Clarification: Facilitator codes can also be in character if the facilitator takes on the persona of an NPC.*	"I put my ear to the door and listen for footsteps."
	C2: Out-of-character	Speaks as the player, refers to in-game actions in the third person.		"[Character] wants to search the room." "I want the group to get through this part of the adventure quickly so we can move on to something more interesting."
	C3: Unsure/ unclear	Unable to determine whether a statement was from the player or char.		"I'm worried about what the shopkeeper is going to do."
	C4: Mixed/ swapping	The player or facilitator switches between in and out of character utterances during an interaction.	*Clarification: may also apply if multiple people are the focus of the interaction and some are in-character and some are out of character.*	"I throw open the door. [character] rushes to the fire and throws the cursed medallion into it!"

Code application:

F, G, and SE codes should each have an S, P, PR, and C code applied with them.
Facilitator codes will not have a prompt code, as the facilitator is driving the session.
Double coding: When there are multiple top-level codes, sub-codes can be applied for both. Just make sure to note/memo which is which.