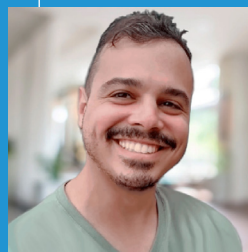


Developing Socioemotional Repertoire in Youth through TTRPGs: A Pilot Study

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ABSTRACT:

Gamification has been investigated in various fields, including education. And tabletop role-playing games (TTRPGs) provide a playful and yet safe space for unique learning experiences to take place. However, the literature on the use of TTRPGs is limited, notably in behavioural science, and particularly in the Brazilian context. This study begins to explore the use of this type of gaming for the development of behavioural repertoires, especially socioemotional, in young people. The auto-efficacy of university students and individuals from the external community regarding their own social and emotional abilities was assessed before, during, and after their participation in a TTRPG campaign. A TTRPG system developed in a psychology research course was used, with mechanics designed to evoke social and emotional behaviours as challenges were faced. Comparative results before and during the campaign showed an increase in comfort to handle social situations and in confidence to handle emotional issues within the gaming environment. Comparisons before and after the campaign suggest a transfer of learning from the game experiences to their individual repertoires. Despite the promising results, the study addresses its limitations. Finally, the potential of TTRPGs as a psychoeducational tool was highlighted, and further investigations in different areas were suggested.

KEY WORDS:

psychoeducation, skills, socioemotional, tabletop role-playing games.

DOI:

10.34135/actaludologica.2024-7-2.52-62

Introduction

Skinner (1938) presents a glimpse of his behaviourism in *The behavior of organisms*, from which it is understood that behaviours are shaped and maintained by their consequences. In practice, this implies that the control of the consequences, or the management of reinforcements and punishments in contingencies, can be used for behaviour modification. Since then, areas of knowledge involving behaviour as a subject of study have adopted this philosophical foundation in their theoretical frameworks, such as psychology with behaviour analysis, as well as gamification methodology (Morford et al., 2014).

The term *gamification*, coined by Nick Pelling, is an active methodology that applies game elements in non-playful contexts (Marczewski, 2013), and has been increasingly prominent in areas involving behavioural changes, such as education (Borges et al., 2013; Klock et al., 2020; Raposo Neto et al., 2023) and health (Bassanelli et al., 2022; Damaševičius et al., 2023; Nurtanto et al., 2021; Riar et al., 2022; Xie, 2022), showing promising empirical results. However, being a relatively new concept, there is much to explore in its different branches, such as role-playing games or RPGs (Morford et al., 2014).

The analogical version of RPG, a *table-top roleplaying game* (TTRPG), traditionally played around a table, is defined as a collaborative storytelling with defined rules (Tychsen, 2006). Important structural aspects form the basis for it to happen, such as a shared premise among participants, a style of setting where the story will take place, a starting point for everyone, a system of mechanics governing the functioning of the game,

and a person serving as a narrative guide. In an TTRPG campaign, each participant takes control of one or more characters, using them as a 'vehicle' to interact with the fictional reality of the game, interpreting them using verbal and non-verbal behaviours for one or several sessions called a *campaign* (Saldanha & Batista, 2009).

Unlike the growing literature on gamification, TTRPGs have been approached with resistance and limited research, especially in Brazilian and behavioural studies. Only recently has it received positive attention in elementary education (Lima, 2021), while in health, there are timid occurrences (Araujo et al., 2011; Lima, 2021; Saldanha & Batista, 2009), but rarely with a behaviourist focus, even though there are already known ways to intervene and expand behavioural repertoires through TTRPGs (Lima, 2021).

However, games in general are initially designed for entertainment. Skinner (1986) sees contingencies that are purely reinforcing as problematic for the maintenance of culture and the human species. There is also a famous quote often attributed to the psychologist Piaget which states that "play is the work of children" (Wilkinson, 2016, p. 18). The enjoyable nature of games, therefore, may be one reason for the apparent lack of interest in prominent investigations into TTRPGs by academics. On the other hand, then, it is inferred that demonstrating the usefulness of TTRPGs beyond fun, such as in facilitating the planning of teaching contingencies, that is, the evocation, reinforcement, and suppression of behaviours (Skinner, 1968), can begin to arouse the interest of these researchers in this tool. After all, there is already enough interface between the main concepts of TTRPGs with psychological and behavioural analysis itself (Menezes et al., 2014; Morford et al., 2014; Lima, 2021), opening up comfortable theoretical space for the production of joint knowledge between these areas.

It is perceived in the literature that, when TTRPG is studied, rare are the works that develop their own systems for non-game purposes (Kurutz et al., 2020), even more so those that measure their results (Coelho, 2017; Lima, 2021). In most cases, studies with TTRPG in education go through adaptations of existing recreational RPGs for some context of interest (Salvado et al., 2022), yet are lacking the methodological aspects of academic research.

This absence of scientific works on TTRPG can be seen as a symptom of delay in the development of teaching technologies, as Skinner (1968) defines them. This playful tool could be strengthening culture, in the form of schemes and methods for the instruction of skills and knowledge, instead of eroding it by purely reinforcing purposes (Skinner, 1986).

Another perspective concerns the specific development of skills in young people. Inserted in a context of increasing social and emotional pressure, many of these individuals lack sound mechanisms to face daily adversities. Family, academic, professional, and even technological tensions, among other common spheres of modern life, can be intense sources of stress for this group (de Faria et al., 2012). Emotional regulation and the development of social skills are areas of urgent need for many of them, yet they are poorly explored in the educational context that shapes them, leaving this learning to the uncertainties of life (Borges et al., 2013). This demand can often lead to anxiety-inducing experiences and the traumatic processing of them, as there may be a lack of adequate coping repertoires to deal with their distress and frustrations (Nunes, 2013; Arenas et al., 2022).

Experiential games, such as TTRPGs, address this demand by providing safe and controlled environments to test limits and face ambitious challenges, where the consequences of mistakes do not have direct repercussions in the individual's reality (Blackmon, 1994; Matsuo, 2021). This can reduce, for example, the fear of failure and encourage experimentation and risk-taking (Teodoro, 2010). Experienced players, who are already familiar with the safe perspective of TTRPGs, even seek increasingly challenging fictional contexts (Poeller et al., 2023).

TTRPGs also provide a natural alignment with social learning. Players often have to cooperate with each other to achieve common goals. Thus, they can learn to value diversity (Costa et al., 2022), deal with social anxiety (Varrette et al., 2022), negotiate, and resolve conflicts (Grando & Tarouco, 2008; Gutierrez, 2017), which are valuable and skills transferable to real life (Arenas et al., 2022). This hypothesis is based on the Skinnerian view that people can only respond to their environments' stimuli, even when fictional, from their individual pre-existing reinforcement experiences (Skinner, 2015). Thus, as players experience the reinforcing and punishing consequences of an TTRPG campaign, they are actually expanding their own behavioural repertoire.

In 2022, civil engineer Átila Duval launched the *Ludecário* TTRPG system, following his research as an undergraduate psychology student at the University of Brasília. His work aimed to bridge the worlds of psychotherapy and TTRPGs, leveraging his engineering background to create tailored game mechanics and skill rolls with fairer probabilities. The system is inspired by Skinner's (1938) theory on behaviourism, Ekman's (1992) theory on the basic emotions, Lynch's (2012) findings on the factors influencing successful psychotherapy outcomes, the dialectical behavioural therapy (DBT) practices on group therapy (Rathus & Miller, 2015), McRae and Gross' (2020) findings on emotional regulation, Bowman's (2018) view on immersion in RPGs, Yee and Bailenson's (2007) theory of the *Proteus effect* and other famous TTRPG systems, such as the generic universal role-playing system or GURPS by Steve Jackson Games (2004), the 5th edition of *Dungeon & Dragons* (D&D) by Wizards of the Coast (2014) and *Vampire: The Masquerade* by White Wolf Publishing (1991), that are renowned for their emphasis on character development, categorizing of skills, combat mechanics, and storytelling elements. In *Ludecário*, for the initial character creation process, all participants are guided to delve deeply into specific directives, in order to help with immersion: age, important NPCs (non-player characters) in their history (childhood, adolescence, etc.), their likes and dislikes, main aversive emotion (anger, sadness, fear or disgust), motivations, and the underlying reasons for these motivations. *Ludecário* incorporates an emotion mechanic designed to serve therapeutic purposes. Whenever a player fails their dice rolls, their character experiences aversive emotions, which accumulate up to a certain threshold. If this threshold is reached and not addressed, it can lead to the character entering a crisis state. To avoid a crisis, the player must strategically use specific abilities, based on the main aversive emotion they've chosen for their characters, to effectively regulate them. If a player fails to regulate their character's emotions, the ensuing crisis renders the character incapacitated, unable to act until they *process* these emotions. This processing involves the player having a moment solely to narrate the effects of the emotion on the character, fostering an understanding of their own feelings, and reflecting on the choices that led to the crisis, promoting a sense of responsibility for the consequences of their character's actions. This process is intended to facilitate learning from the characters' experiences, the development of self-awareness among players, and the prevention of future crises in their characters. The players can also help each other, with the use of two other mechanics, either through inspiring their fellow companions or assisting their regulation processing. The inspiration mechanic is also a social mechanic, along with other social skills available for their use (such as rhetoric and leadership). Through this system, players are expected to gain insights into their own emotional regulation and social engagement, translating these skills from the game into their real lives.

This study aims to be a pilot study for future research and a provocation to the academic community regarding the normalization of TTRPGs in behavioural research, inspiring both the creation and exploration of these playful tools for intentionally psychoeducational purposes. The goal is to gain an initial insight into how the configuration of a TTRPG,

with mechanics specifically designed to evoke social and emotional behaviours in characters facing fictional challenges, can affect players' perception of their own socioemotional performance. With this scope, it is hoped to nurture favourable views on the potential of this type of game in behavioural modification contexts, such as education and health.

Methodology

Building upon the suggestions of Liapis and Denisova (2023) on how to assess the TTRPG player experience in game creation and research contexts, this study explored how participants in a recurring extension program at the University of Brasília perceived their own socioemotional resourcefulness and interest in TTRPG before, during, and after engaging in a TTRPG campaign with mechanics specifically designed to address these themes. A within-subject experimental design would be suited for an extended study of this matter in psychology, since the effects of some dependent variables in skills training are best analysed when comparing the performance of each participant within themselves (Brown et al., 1998; Charness et al., 2012). However, for this pilot study, a simple group analysis was employed in order to verify paths for further in-depth studies.

Following the presentation of this study's proposal during a semester activity of the extension group, four university students from different undergraduate courses at the University of Brasília and two individuals from the external community volunteered to participate in the playing sessions. This resulted in a total of six players aged between 20 and 25 years. Among them, only one participant was male, and there were varying degrees of experience in RPG and knowledge of the basic psychological processes.

The *Ludecário* TTRPG system developed by Duval in 2022 was used, due to its socioemotional mechanics. A tablet and computer screens were utilized to present character sheets, rules, and maps. Speakers provided means for immersive soundtracks. Six-sided dice were used to resolve in-game situations. The Google Forms platform was employed to create questionnaires and gather feedback on the participants' experience.

The sessions took place on Wednesdays and Fridays between 4:00 PM and 6:00 PM throughout the academic semester, amounting to 25 game sessions or 50 hours of adventures for this TTRPG campaign. Players gathered around a table in the living room of the first author's residence, who also served as the narrator. Everyone had access to both the computer and tablet screens for the visual elements of the game throughout the sessions.

The game's story unfolded in an apocalyptic scenario, where half of the population turned into hungry undead hordes in an instant, while the other half tried to perceive, process, and protect themselves from the situation. The characters were introduced to the story on a typical day at the University of Brasília and had to cooperate to face the challenges. Each character was equipped with abilities of varying degrees, according to the players' preferences. In the face of these challenges, their abilities were tested through dice rolls, and in the event of failures, players dealt with the accumulation of aversive emotions. The players had to regulate these emotions in their characters, using the advantages and avoiding the disadvantages that each emotion presented.

Participants responded to three questionnaires applied respectively before, during, and after the TTRPG campaign, to assess their perceptions of their socioemotional self-efficacy and their familiarity with and interest in TTRPGs. The responses collected before the campaign began served as the baseline, reflecting the participants' real-life context. During the campaign, players were asked only questions about socioemotional self-efficacy, but were instructed to respond as their characters. After the campaign concluded,

they answered all the questions again, this time as themselves. The questions were based on the Mindfulness-Based Self Efficacy Scale Revised or MSSES-R (Cayoun et al., 2022), which measures the perceived self-efficacy of respondents in overcoming daily stressors, using a Likert scale, ranging from 1 (“not at all”) to 5 (“completely”). Key areas of inquiry included how players handled common TTRPG social and emotional dynamics like participating in group settings, expressing ideas, controlling their own emotions, dealing with pressure, and handling failure.

It is important to clarify that these questionnaires were designed not to assess the efficacy of the TTRPG system itself, but rather to gauge the players’ perceptions of their own socioemotional efficacy at three different points in time. The surveys were taken on-line with Google Forms. One participant’s data were excluded due to missing the last survey’s deadline.

Results and Discussion

The results were compiled in Table 1, showing the percentage of players who selected the indicated rating on the scale. Similar to the MSSES-R, a rating of 1 means “not at all”, while 5 means “completely”.

Table 1: Percentage of players who selected the indicated number for each question

No.	Question	Moment of the questionnaire	Responses (%)				
			1	2	3	4	5
1	How comfortable do you currently feel working in group settings?	Pre-campaign, as themselves			60	40	
		Mid-campaign, in character			20	60	20
		Post-campaign, as themselves				80	20
2	How comfortable do you currently feel expressing your ideas and opinions to others?	Pre-campaign, as themselves			80	20	
		Mid-campaign, in character			20	40	40
		Post-campaign, as themselves			60		40
3	How confident do you currently feel in handling your emotions and thoughts?	Pre-campaign, as themselves			60	20	20
		Mid-campaign, in character			40	40	20
		Post-campaign, as themselves			40	20	40
4	How confident do you currently feel in dealing with pressure and stress situations?	Pre-campaign, as themselves			20	80	
		Mid-campaign, in character			20	40	40
		Post-campaign, as themselves			20	60	20
5	How confident do you currently feel in handling failure and frustration?	Pre-campaign, as themselves		40	20	40	
		Mid-campaign, in character		20	40	20	20
		Post-campaign, as themselves			40	40	20
6	How familiar do you currently feel with TTRPG mechanics and rules?	Before the campaign started	60		20		20
		After the campaign finished			20	60	20

7	What is your current level of interest in TTRPG for entertainment and fun?	Before the campaign started	20	20	20	20	20
		After the campaign finished			20	40	40
8	What is your current level of interest in TTRPG for developing skills?	Before the campaign started	20		20	20	40
		After the campaign finished				40	60
9	What is your current level of expectation / satisfaction regarding the system and setting proposed for this TTRPG?	Before the campaign started		20		40	40
		After the campaign finished		20	20	20	40

Source: own processing

Questions 1 and 2 gauge the player's perception of their social skills efficacy, while questions 3 to 5 focus on their emotional skills efficacy. Questions 6 to 9, unrelated to the MSSES-R, assess their interest in and familiarity with TTRPGs. These questions were not asked in the mid-campaign survey as respondents were instructed to respond in character, making a question about TTRPGs incongruous to the task at hand. The group's mean responses for each question are presented in Table 2, offering a summary of the outcomes.

Table 2: Mean group responses to each question

No.	Question	Moment of the questionnaire	Mean Response (1 to 5)
1	How comfortable do you currently feel working in group settings?	Pre-campaign, as themselves	3.4
		Mid-campaign, in character	4.0
		Post-campaign, as themselves	4.2
2	How comfortable do you currently feel expressing your ideas and opinions to others?	Pre-campaign, as themselves	3.2
		Mid-campaign, in character	4.2
		Post-campaign, as themselves	3.8
3	How confident do you currently feel in handling your emotions and thoughts?	Pre-campaign, as themselves	3.6
		Mid-campaign, in character	3.8
		Post-campaign, as themselves	4.0
4	How confident do you currently feel in dealing with pressure and stress situations?	Pre-campaign, as themselves	3.8
		Mid-campaign, in character	4.2
		Post-campaign, as themselves	4.0
5	How confident do you currently feel in handling failure and frustration?	Pre-campaign, as themselves	3.0
		Mid-campaign, in character	3.4
		Post-campaign, as themselves	3.8
6	How familiar do you currently feel with TTRPG mechanics and rules?	Before the campaign started	2.2
		After the campaign finished	4.0
7	What is your current level of interest in TTRPG for entertainment and fun?	Before the campaign started	3.0
		After the campaign finished	4.2

8	<i>What is your current level of interest in TTRPG for developing skills?</i>	<i>Before the campaign started</i>	3.6
		<i>After the campaign finished</i>	4.6
9	<i>What is your current level of expectation / satisfaction regarding the system and setting proposed for this TTRPG?</i>	<i>Before the campaign started</i>	4.0
		<i>After the campaign finished</i>	3.8

Source: own processing

Comparing the pre-campaign and mid-campaign contexts, there is a clear increase in all mean responses. This trend indicates that the group likely experienced enhanced comfort navigating social situations and greater confidence in addressing emotional challenges within the game, relative to real-life scenarios. These findings align with the view that TTRPGs may reduce the fear of failure and subsequently encourage experimentation and risk-taking (Teodoro, 2010).

Analysing the pre-campaign and post-campaign contexts also shows a significant increase in all mean responses. This trend suggests that participants' average perceived self-efficacy in social skills and emotional processing improved following their engagement in the gaming experience. This observation aligns with the learning transfer process, indicating that the simulated socioemotional scenarios experienced through their game characters may have generalized to their real-life behavioural skills (Arenas et al., 2022; Skinner, 2015).

Interestingly, when comparing the mid-campaign and post-campaign contexts, questions 1, 3, and 5 showed an increase in the mean responses. These findings may suggest that, not only might the group have experienced improvements in their socioemotional self-efficacy following their engagement with TTRPG, but also some of the comfort and confidence felt mid-campaign may have transferred into their everyday lives.

Participants' interest in and familiarity with RPGs for entertainment and skill development grew by the end of the semester. However, their expectations regarding the scenario and system employed may not have been fully met, indicating a need for potential adjustments in mechanics or enhancements in the narrator's storytelling abilities to better align challenges with participants' individual realities (Poeller et al., 2023).

Conclusion

This pilot study aims to contribute to academic literature by demonstrating the potential of tailored TTRPG systems in therapeutic, educational, and health applications, with the goal of stimulating further research in this area. The selected TTRPG system in this study showed promise in fostering social skills and emotional management by immersing participants in fictional challenges through their characters, opportunities they might not encounter similarly in real life without risking consequences.

Due to the preliminary nature of this exploration, the study did not fully explore the extent of these effects. However, initial findings suggest that learning experiences from the game may translate into participants' daily lives, highlighting the necessity for additional research into the use of TTRPGs in behavioural modification contexts.

Future studies could expand on these findings by examining a larger and more diverse sample, assessing a wider range of social, emotional, and cognitive skills training outcomes. Further investigation could also explore how immersive elements such as physical settings, props, and character backgrounds enhance the benefits of TTRPGs

in skill development. Moreover, research could investigate the potential of TTRPGs in behavioural modification within psychological counselling or intervention settings, particularly for adolescents and young adults facing behavioural challenges. Such studies could help to identify game scenarios that effectively evoke and train social and emotional behaviours.

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