# INTERNATIONAL JOURNAL OF ROLE-PLAYING

**A peer reviewed journal on analog role-playing games**
and adjacent phenomena

## ISSUE 17

# Editorial
## Ambitions in Applied Role-Play

**Welcome to Issue 17 of the *International Journal of Role-Playing*.**

22 authors. 10 articles. The statistics of this issue alone give us pause. The *IJRP* Issue 1, published 17 years ago, had 7 authors and 5 articles besides Anders Drachen's "Editorial," a tidy 5 paragraphs on the issue's origins, the universality of role-play, and the journal's explicit goal: "to facilitate and promote inter-network communication on role-playing research" (Drachen 2008, 2). In 2025, with its 17th issue in the journal's 18th year and featuring authors from all over the world, this Editorial Board maintains that we've fulfilled our mission. This time, we have authors spanning four continents from institutions in Ireland, Finland, Chile, Spain, the US, Greece, Australia, the Netherlands, and Sweden.

Role-playing game studies is not just a passing fad or subfield, but a vibrant interdisciplinary gestalt that also constitutes a core subfield of game studies. Within this issue's pages, all three primary liberal arts categories — the social sciences, the natural sciences, and the arts & humanities—are prominently featured, having been double-blind peer-reviewed by appropriate respondents. The shared object of study, role-playing in its varied forms, has enabled us to bring so many of the corners of the academy into dialogue with each other. We challenge the enthusiastic reader of this issue, in fact, to engage with at least one article in a discipline not their own. After all: somewhere amidst the whirlwind of this work, there must be a center.

Central to this issue in particular, however, is *applied role-play*: the act of using role-playing to accomplish some other goal. Role-play is not simply *autotelic*, or for its own sake, but also *telic* and *paratelic*: one can role-play to accomplish a specific goal, or even establish a specific emotional climate. In therapy, it can be used as a "simulation machine" that creates low-stakes environments in which participants can try out novel experiences or frame uncomfortable topics (Abramson 2025). In the military, role-play can incubate strategic mindsets within future leaders (Horiacheva and Ryzhykov 2024). In education, it can activate students' interests, bolster self-esteem, and permit students imaginative forms of math and literacy work (Haarman 2026; Watson 2026). Just as communication technologies such as the cassette tape, safety film stock, and the ethernet cable would eventually transform whole spheres of human activity, so now does an advanced understanding of applied role-play techniques pave a path toward embodied training in previously unimagined fields.

Also central to this issue are the *emotions* of role-players. To ask anyone to role-play is to solicit awkwardness and vulnerability. Expectations can easily run high or be misplaced, and that means plenty of opportunities for frustration and confusion. How can an immersive experience be tailored to arouse a student's curiosity (Hoke and Risk 2026)? Can games help us weather the storms of life (Brave 2026)? Is "the self" itself a site that can be explored through games (Masek et al. 2026)? Now that we have spent many decades trying to understand what role-play does and how it does it, we are in a better place to take the emotions of players seriously as core sites of meaning-making, learning, and design. This is not to say that we have a deity's eye view of the human mind through role-play, only that the medium has patterns that one can anticipate and therefore, to a limited extent, control.

Despite the usual modest goals of academic research, with its often-small sample sizes and provisional findings, this issue in particular connects the role-playing sciences into an ambitious whole greater than the sum of its parts. In fact, several of these articles introduce rigorous quantitative studies with much larger samples than has been the norm for the field, which has historically focused on subjective, first-hand experiences of participants. It starts from the first principles of

human inquiry (the liberal arts), sees role-play as a form of acquiring and disseminating knowledge, and then seeks to re-shape the emotions of participants and, in doing so, perhaps the attitudes of academia, its funding boards, and the wider world around it.

In order to accomplish this, it is notable that we have formed ever-larger groups of networked intellectuals. 19 peer reviewers, 4 editors, and worked on this issue, and 10 copyeditors followed up with revisions on the accepted articles. All 33 worked on a volunteer basis, which used to be the norm in academic writing to preserve intellectual integrity of the work, although we constantly seek funding to support the polishing and layout phases of the work, and were successful only in the latter. Just like role-playing itself, the academic editorial work required of us is community-driven and ultimately necessary to make this larger knowledge project sustainable. Furthermore, the surveys administered by the researchers in this issue have reached over a thousand aggregate participants, meaning that this work has already touched many lives.

Finally, we continue to receive a steady stream of work on the positive benefits of *Dungeons & Dragons* on both paradigmatic and psychological well being levels, which also echoes a flood of similar studies published in the last few years in other journals. These findings are both surprising and unsurprising. While they confirm previous work in the area supporting skill development and therapeutic impacts of the game, they also in some ways either fail to address or serve as a counterbalance to the more negative aspects of the game, such as its emphasis on violence (Albom 2021), its exclusionary content (Long 2016; Trammell 2016; Stang and Trammell 2020; Baker 2022), which has made their way also into larps and other games based on similar content (Martin et al. 2015; Kemper 2018; Loponen 2019). Indeed, recent work also indicates that fantasy gaming can also have positive impacts in these areas, such as empowering girls and women (Connell, Kilmer, and Kilmer 2020; Dashiell 2020) and people of color (Walters 2021). For scholars like Trammell (2020), the very emphasis on "positive benefits" of games is steeped in colonial logic of what is considered useful and trivial play.

Our perspective is that all of these things can be true at the same time; that these games are highly complex and often contradictory environments that offer spaces that may challenge, but also reinforce damaging social norms, as is true in many subcultures. Many of us study these games precisely because we have experienced profound transformations of various kinds as a result of our engagement. Indeed, many of the authors of such studies in this issue hope to encourage similar kinds of experiences in other participants, whether in informal, nonformal, or formal learning spheres. A balanced view of these games should examine both positive and negative effects, as well as explore design and facilitation methods that can mitigate harm and foster greater inclusion.

John Dewey (1938) distinguishes between education and miseducation. From Dewey's perspective, an individual learns from every experience, but some experiences may be miseducative if they reinforce habits that narrow future growth or distort one's understanding of the world. Role-playing games function as powerful experiential environments, and therefore share this same ambiguity. While participants undoubtedly learn through play, what they learn may not always be reflective, inclusive, or growth-oriented. Recognizing this tension does not diminish the value of role-play as an object of research and pedagogical tool. Rather, it reminds us that the design and facilitation of role-playing experiences matter greatly.

The process of co-creative improvisation and the relative degree of agency provided by the affordances of the game can help players feel like they can make meaningful changes in the game, and sometimes this experience transfers to their beliefs about their capabilities outside of games. Work on intrinsic motivation and self-determination (Ryan and Deci 2017) has been of specific interest to RPG researchers (Algayres 2018; Hixson, West, and Eike 2024), as also echoed in McLaren, Oades, and Deery (2026) in this volume in terms of how these games have the potential to develop autonomy, relatedness, and competence regardless of the setting.

Within the issue itself, Ilias Tsiaras and Vasileios Neofotistos (2026) take on the research question

of how adult educators in Greece perceive edu-larps, a form of educational role-play that is also connected with fundamental principles of adult education. Tsiaras and Neofotistos demonstrate that our self-awareness as educators with specific toolkits and our courage to adopt ambitious edu-larp forms of instruction in our classroom are interlinked. "More informed educators," they write, "are more likely to adopt innovative teaching methods, recognizing the multifaceted role they need to embrace to better address their trainees' needs" (11). Educational administrators must read edu-larp activity within their curricula through the frameworks of educational excellence, rather than dismiss the techniques out of hand.

Rachel Hoke and James Risk (2026) continue in the study of edu-larping with a study of the implementation of games, including Reacting To The Past (RTTP) scenarios, in the undergraduate history classroom. RTTP has existed within educational circles for over two decades, offering a bridge between historical-simulation role-play and easily curricular integration. However, very little work has been published to date on these specific games' impacts, either in educational or games research. Hoke and Risk surveyed their students after having participated in RTTP scenarios, discovering that the affective and cognitive engagement offered by the game scenarios offered considerable advantages over traditional lecture. At the very least, edu-larps such as RTTP channel our students' attention and ensure their cultivation of substantive internal narratives regarding the topic at hand.

McLaren, Oades, and Deery (2026) see this engagement in terms of applied role-play work, namely tabletop role-playing games (TTRPGs) such as *Dungeons & Dragons* (*D&D*) playing therapeutic functions. Through the dungeonmaster (DM) figure, *D&D* presents therapists with a powerful tool to meet the basic psychological needs of the players, something that the tabletop role-playing game medium already does *outside* of therapy. For the discipline of psychology, such foundational work by McLaren, Oades, and Deery is necessary to advance lines of inquiry between games and mental health.

Echoing this focus on mental well-being as well as our previous special issue on consent and safety in role-play, Joe Lasley and Antonio Ruiz Ezquerro (2026) examine psychological safety in TTRPGs as a multi-dimensional construct. The authors emphasize the "relational and networked" quality of leadership in modern theories of management, which also corresponds with the collaborative nature of role-playing games as media. If anyone needed an article to demonstrate that it is not an *individual* but a *collective group* that keeps a whole role-playing game session within the boundaries of safety and consent, this is the one.

Luka Brave (2026) also found high levels of empathy in tabletop role-playing groups, in that those engaged in role-play often assumed the perspectives of others and were able to abstract and analyze their own emotional states. Brave's work illustrates the remarkable nature of TTRPGs and larps as vehicles for self-knowledge, especially in gauging one's own feelings with respect to circumstances of trauma and/or emotional strain. The illusions of role-play scenarios can directly translate into the emotional realities of dealing with stress and other adverse mental conditions.

Brave's work leans on the notion of bleed, or the overlap between player and character emotion, is central to the psychological work of Albers and de Wit (2026), who have operationalized bleed in a focused study on *D&D*. They have discovered that the development of a character with a personality that greatly resembles that of its player will also further facilitate bleed on all fronts. Furthermore, a character possessing traits that the player wished they themselves possessed will also increase overall bleed. A dissimilar character, in the meantime, will find their traits expressing themselves within the player, but not *vice versa*.

McKenzie, Zawilski, and Beirne (2026) deal with *D&D* bleed of a different sort: the kind of moral guidance that a commercial tabletop role-playing scenario offers its players. Their study examines *D&D* through decolonial theory, leaning on the idea that themes and messages *against* the commercial-colonial logic of a corporate game can be "smuggled" into the corporate product itself. The article covers the breadth of reception theory and the politics of revolutionary persuasion before resting its gaze on an innocuous *D&D* scenario that may have activated the conscience of many players worldwide.

In Masek, Galeote, Pomposini, and Gonzalez-Cohens (2026), the authors coin the phrase "ludic inquiry" to define their research methodology, in that certain social "facts" emerge through the ludic behaviors within a specific game scenario. The larp that helped shape this research, *On the Other Side*, explores questions of migration and fascism. Although the relationship of simulation and role-play to social-systems modeling is quite well-established, Masek et al. demonstrate the way that games allow players to try on different social frameworks and incentive structures. Future researchers can always design a larp around their inquiries, and map the decision trees in which players tend to find themselves.

Juvrud (2026) represents the cutting edge in role-playing research, crossing between the functions of the body and the play of the mind. In "Utilizing Psychophysiological Measures in Role-playing Studies," Juvrud analyzes the connections between decisions made in the game and measures such as eye tracking and heart rate. This pathbreaking work, despite requiring a highly controlled and stationary environment, opens up numerous possibilities for bridging between the medical sciences and the humanities, in which storytelling is both an external expression and internal physiological state.

The issue also contains an English translation of Garcia-Soriano, Moreno, and Cohens' (2026) 2023 article "Juegos de Rol para el trabajo en equipo," which sees role-playing as an ideal tool for fostering teamwork. What is useful here is the author's overall outline of the process, such that the curious reader might implement it themselves. The Editorial Board of *IJRP* views this particular framework as an object of potential interest to an English-language readership as well. Furthermore, we aim to publish translations of key texts in each issue when possible, especially with reference to literature on applied role-playing games. Thus, we are working closely with the *Journal of Roleplaying Studies and STEAM*, which publishes work in Spanish and English.

It is rare for us to be able to stop, take a breath, and do an inventory of our contributions and ongoing projects. Nevertheless, such a moment has been afforded us here, and we should appreciate the sheer scale of this newer work in role-playing game studies. Signal has transcended all noise here: role-playing is not just a medium of expression, but a sophisticated tool for anyone working on the relationships between humans, or simply those relationships we have with ourselves and our inner worlds. If it is helpful to take on a persona or character to accomplish a goal, why not do it?

––Evan Torner, Sarah Lynne Bowman, Susan Haarman, and William J. White
March 9, 2026

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# Educational Live-Action Role-Playing Games in Adult Education: Constituents and Perspectives

**Abstract:** The primary purpose of this study is to investigate the perceptions of adult trainers in Greece about educational live-action role-playing games (edu-larps) and their utilization as a teaching method. More specifically, it is an attempt to determine the trainers' attitude in association with the cultivation of basic skills in adult education (interdisciplinarity, collaboration, critical thinking, and inquiry-based learning) while using this method. The study also examines whether there is a connection between the trainers' perceptions towards edu-larps and their demographics. The ultimate goal for the study is to act as an introduction for this particular educational community to an innovative teaching method and to set the ground for further research that will broaden the pedagogical field.

The results show that the concepts described above are an integral part of edu-larps, specifically the advancement of critical thinking and the innate interdisciplinary aspect of this teaching method. Additionally, there seems to be a statistically significant correlation between the level of specialized training in adult education and the utilization of edu-larps on behalf of the educators.

**Keywords:** edu-larps, creative thinking, innovative teaching methods, role-playing games, inquiry-based learning, adult learning

**Ilias Tsiaras**
University of Macedonia, Greece
*ilitsiaras@gmail.com*

**Vasileios Neofotistos**
University of Macedonia, Greece
*vneof@uom.edu.gr*

## INTRODUCTION

Education has evolved significantly over the years, and experienced a remarkable increase in both participation and achievement. By cultivating the knowledge, skills, attitudes and values essential for societal functioning, education molds our world. It fosters social unity and equips individuals to be effective employees and engaged citizens (OECD 2022). The very essence of education itself has changed since it does not aim at the accumulation of facts but has adopted a more supportive role, addressing the student/learner under a more holistic, humanitarian view (Prager and Jeinz 2019, 5-6). Talmage et al. (2018), claim that one of the main goals of education is the insurance of a set of learning skills and abilities that will enable learners to be independent and efficient individuals who live in a constantly changing, uncertain world (114-15). Today, more than ever, education should have in mind the progress and well-being of society on a global scale. Climate change, pandemic outbreaks, the rapid rise of artificial intelligence, and the ever present threat of another world war, mark education (and even more, adult education) as an essential asset for a better future (OECD 2022).

A decisive step towards this future, according to Kaplan (2019), is the cultivation and enhancement of social skills, such as effective communication, empathy and creativity (141). Moreover, Erdem (2019) claims that despite all the recent technological advancements and their implementation in almost every aspect of our daily lives, indispensable skills for the active citizen of the 21st century do not belong exclusively in the digital world but are intertemporal concepts like curiosity, imagination, collaboration and adaptability, as well as various metacognitive abilities and the aforementioned social skills (5-6). Most of these skills are included by the World Economic Forum on the list of the fifteen most valued work-related abilities for 2025 (WEF 2020,

36). The correlation between the applicable educational system and labour market absorption is a troubling affair that has been plaguing researchers from both academic fields for many years now. Burner (2018), in particular, referring to the necessary steps towards a more meaningful and manifold education, states that… "…what is required are unique talents, skills and knowledge, the ability to adapt to changes and creativity, – and of course educational change that aims to cultivate this diversity and encourage students to pursue their strengths" (125). A modern teaching method that can encourage all these skills and abilities without falling short of knowledge accumulation is educational live-action role-playing games (edu-larps) (Bowman and Standiford 2015).

This research can be considered a first attempt at interpreting the complex relations between the various innate characteristics of edu-larps and the perceived attitude towards this teaching method on behalf of adult educators in Greece. Although edu-larps are gradually being used more frequently, particularly in Europe and America, there seems to be a gap in current bibliography about their implementation in adult education, as well as the perception of educators towards their values as an educational tool.

## 2. THE HISTORY OF EDU-LARP

Live-action role-playing games (larps) represent an evolution of traditional role-playing games (RPGs). In RPGs, players assume the roles of imaginary characters and collaboratively create narratives through imagination. Montola (2009) describes RPGs not as competitive games but as "an interactive process in which a group of people redefines an imaginary world" (23). When integrated into educational contexts, larps become edu-larps, which are defined as "a learning activity in which participants act out a set of defined role behaviors or positions to acquire desired experiences" (Khan 2017, 55916). Branc (2016) expands this definition, stating, "Edu-larp is any method that uses larp as a student activity directly connected to the pedagogical goals of teaching or therapy" (37).

Edu-larps, evolving from tabletop RPGs, have been in use since the late 1990s. However, the educational application of role-playing games predates the 1974 publication of the first tabletop RPG, *Dungeons & Dragons*, which was created by Gary Gygax and Dave Arneson (Witwer 2016). The earliest recorded use of fictional scenarios with assigned student roles dates back to the 1950s-1960s. Hammer et al. (2018) note that these scenarios were utilized within the framework of Situational Language Teaching theory to practice effective communication in real-life situations. During the 1980s, the educational application of role-playing games expanded from the humanistic social sciences, which had established learning outcomes, to the natural sciences (Dorion 2009). Simultaneously, the origins of edu-larps can also be traced to Educational Drama, as it was developed in the mid-1970s, bringing to the forefront the theories of Vygotsky, Bruner, and Freire. Similarly, the beliefs of Arturo Boal, as described in the Theatre of the Oppressed, could be considered the foundations of educational live-action role-playing games (Giannouli 2021).

Torner (2022) identifies one of the earliest edu-larps as the Reacting to the Past project, created by Mark C. Barnes, a History professor at Barnard College, New York (179). Since its inception in the late 1990s, Reacting to the Past has employed numerous scenarios to reenact historical events, such as the fall of the Roman Empire and the trial of Galileo (Reacting to the Past-Barnard College 2023). Currently, edu-larps are commonly utilized in adult education, particularly within various Erasmus+ projects. Adult education refers to the practice of teaching and educating adults, often outside the traditional school and university systems. Most of these Erasmus+ projects fall under non-formal or informal learning categories, with some offering certificates via Youthpass. These scenarios enhance learners' intrinsic motivation while fostering collaboration, inclusion, and sustainability through experiential learning principles (European Commission 2022).

In recent years, interest in edu-larps has grown across all educational levels. This trend is highlighted by the BBC documentary "The Documentary Back to School: Supporting Neuro-divergent Students through

Larp" by Sarah Lynne Bowman (Bowman 2023), and the establishment of a Master's Degree Program focused on the use of analog role-playing as a tool for personal growth and social change (Uppsala University 2025). This development underscores the connection between edu-larps and Mezirow's perspective transformation theory.

## 3. EDU-LARP AND LEARNING THEORIES

Prager and Jeinz (2019) assert that the fundamental principle of edu-larps is rooted in the concept of experiential learning, aligning well with andragogical guidelines. Adult learners, and learners of all ages, tend to learn more effectively through active participation rather than passive reception (5-6). Lacanienta (2022) correlates the elements of a didactic edu-larp scenario with the four stages of Kolb's learning cycle, which includes: a) concrete experience, b) reflective observation, c) abstract conceptualization, and d) active experimentation. During an edu-larp, participants engage in concrete experiences by enacting predetermined roles and solving problems, leading to reflective observation of both their own and their peers' reactions. This reflection fosters abstract conceptualization and active experimentation, where participants devise strategies to progress. Critical reflection continues during the debriefing stage, where trainees discuss their experiences and insights, enhancing the experiential learning process (72).

Ertuk (2015) emphasizes that the extensive dialogue among participants at the end of an edu-larp further enriches the experiential aspect of learning by encouraging trainees to focus on how the experience has impacted them (151). Prager and Jeinz (2019) consider this debriefing stage crucial, as it allows participants to compare their thoughts and experiences, connecting newly acquired knowledge with real-world contexts (1). Other researchers (Daniau 2016; Maragliano 2019; Schmit et al. 2009) also recognize edu-larps as a teaching approach that promotes cognitive and perceptual transformation through structured conflict.

Edu-larps also align with Freire's concept of liberating education, wherein learners' actions within the gaming scenario reflect personal meanings shaped by the sociopolitical context. Kalogridi (2019) notes that this process requires advanced critical thinking and a desire for social change (118-9). Schmit et al. (2009) argue that edu-larps help participants gain a clearer understanding of their social reality and their roles within both local and global communities (92-3). The interactions and active participation of learners, combined with critical reflection during the final stage of the edu-larp, align well with Mezirow's transformative learning theory. According to Koulaouzidis (2008), edu-larps encompass all three critical aspects of this theory: a) experience, as participants engage in real-time educational scenarios; b) critical reflection, evident during debriefing; and c) communication/critical dialogue, which is integral throughout the game's construction and execution (22-26).

Kamm and Becker (2016) describe edu-larps as a "new performance art," highlighting their educational value and interdisciplinary nature due to their incorporation of theatrical elements (36). This approach aligns with Kokkos and his colleagues' (2011) proposition on the integration of art in transformative learning. The active involvement of participants in their roles marks them as active contributors to the learning process. Maragliano (2019) emphasizes the holistic nature of edu-larps, where participants utilize prior knowledge, emotions, senses, and their entire body while collaborating to analyze and synthesize information (459). This process, through critical reflection and creative application of unique skills, can lead to questioning entrenched social and political beliefs, potentially facilitating "qualitative perspective transformation" as described by Kokkos and associates (2011).

Furthermore, the constructivist nature of edu-larps fosters essential modern social skills, as teamwork is crucial for achieving collective goals (Khan 2017, 55918). Timpalexi (2011) suggests that the concept of larping aligns with Piaget's constructivist theories, where learners build on prior knowledge and gradually reconstruct it through new information acquired during the game (597). The construction of knowledge in

edu-larps parallels inquiry-based learning, a teaching method rooted in constructivism (Houghton et al. 2022, 3), reinforcing its validity as an independent variable within the theoretical framework.

## 4. EDU-LARP AND ADULT EDUCATION

The role of an adult educator is multifaceted and complex (Kalogridi 2019). According to Beckett's "Adult Learning: Philosophical Issues," it is crucial for teaching methods in adult education to effectively support this role, fulfilling educational goals while ensuring that the learner remains central to the learning process (115-16). A significant challenge in contemporary education is identifying methods that not only motivate learners but also facilitate changes in their attitudes and established beliefs (Burner 2018, 124). Edu-larps, as an exemplary experimental teaching method, enhance learner commitment by targeting intrinsic motivations such as personal satisfaction, a characteristic inherent in all games (Bowman and Standiford 2015, 6-7). Mochocki (2014) emphasizes that active participation in edu-larps is achieved through collaboration and healthy competition, both integral to this practice (134).

Active participation is particularly vital in edu-larps given that learning is not solely a cognitive process but involves emotional dimensions as well. The participant's body plays a crucial role since emotions and feelings are stored not only in the brain but also in nerve endings throughout the body (Meriam 2011). Torner (2022) concurs, noting that cognitive processes are intertwined with physical sensations, thereby shaping reality through sensory experiences (177). This perspective adds a holistic dimension to learning, viewing it as a dynamic process where cognitive thought, body, and emotions are interconnected. Edu-larps, as an experiential learning method with theatrical elements, leverage these factors to promote the comprehensive development of both individual and social personalities of trainees (Marini 2019).

The personal experiences that learners encounter during edu-larps enhance the acquisition of new knowledge and cultivate higher cognitive abilities valued in the modern labor market, such as problem-solving and innovative thinking (Prager and Jeinz 2019). Khan (2017), in "Role-play: a Teaching Strategy that Adds Fun in Learning," highlights the social and humanitarian aspects of edu-larps. She argues that by embodying characters different from themselves, learners can address sensitive issues from new perspectives, fostering empathy. Bowman (2014) underscores the connection between edu-larps and empathy, noting that in the Nordic countries, this method is often used to raise awareness about the effects of complex social issues such as poverty, immigration, refugee displacement, homelessness, and various forms of discrimination.

## 5. THEORETICAL FRAMEWORK

Adult education encompasses a wide range of learning activities, including vocational training, personal development courses, literacy programs, professional certifications, and continuing or lifelong learning. Apart from development of knowledge and skills, individuals are able to generate awareness in terms of their rights and duties, which are required to turn into effective, active citizens of the country (Kapur 2019). Today, the definition of adult education that has prevailed within the framework of the European Union is the one given by the European Commission in October 2006, which specifically states, "Adult education is defined as all forms of learning undertaken by adults after they have completed their initial education and training, no matter how long it lasted (including, that is, even tertiary education)" (European Commission 2006). Concerning the same issue, adult learners are individuals recognized as adults by legal standards—(18 years of age or older in Greece). However, it is not solely their age that should be considered; the social roles that define them are of greater significance (Kapur 2019).

More specifically, adult education in Greece is a field that is developed through various educational institutions and programs, encompassing elements of both formal education and vocational training. The

primary institutions of formal education include public Second Chance Schools, which offer adults without a secondary education diploma the opportunity to complete their basic education. In the vocational training sector, Vocational Training Institutes, which recently have been renamed as Higher Vocational Training Schools, both public and private, provide certified professional education in diverse fields, emphasizing technical and practical skills. Additionally, the Centers for Lifelong Learning, under the supervision of the Ministry of Education, coordinate general and vocational education programs for adults, expanding educational opportunities beyond traditional academic frameworks (DiaNeosis 2021). The role of the state is pivotal, as it funds and oversees most of these programs through European and national resources, with the aim of improving skills and facilitating the social inclusion of adults. Through the implementation and regulation of these programs, the state promotes the upgrading of professional and lifelong skills, particularly focusing on the needs of the labor market (Titirou 2016).

According to Branc's *Edu-Larp as a Game-Based Learning Method for Corporate Training* (2016), edu-larps encompass many characteristics that are the cornerstones of adult learning (25-6), such as the fact that they can be a tool that bridges together different teaching subjects, they are based upon the notion that participants need to work together to achieve their goals (Schmit et al. 2009), the challenges that the scenario presents to learners promote critical thinking and creativity in general (Bowman and Standiford 2015) and lastly, their whole theoretical structure promotes self-awareness, focusing on the concept that a learner needs to be independent to learn efficiently (Daniau 2016). These four notions form the backbone of this research, acting as the primary independent variables that determine the attitude (dependent variable) of adult educators about the implementation of edu-larps as a teaching method. The notions above comprise the concepts of Interdisciplinarity, Collaboration, Critical thinking and Inquiry-based learning, deeply valued conceptions that every adult educator should strive to inspire in his students (Beckett 2011; Cranton 2011).

This research draws on John Dewey's concept of education as an adaptive, socially engaged process, focusing on his call for innovative methods to align education with real-life contexts. Dewey's belief that learning should promote practical understanding, collaboration, and problem-solving provides a solid foundation for exploring how adult education can foster attitudes of critical thinking, interdisciplinary learning, and inquiry. Dewey's advocacy for "learning by doing" resonates strongly in adult education, where experiential learning and community engagement are central to meaningful, transformative experiences (Kara 2019). This approach is particularly suited to introducing edu-larps in Greece, where their use remains limited compared to other parts of the world, where their contribution to a more holistic form of education is increasingly recognized. By integrating experiential methods that foster critical thinking and collaboration, edu-larps offer an innovative approach that aligns with Dewey's ideas and addresses the needs of modern adult education in Greece, bridging learning with real-life contexts and promoting active participation and social integration.

In adult learning settings, where students often bring diverse backgrounds and practical experience, Dewey's beliefs encourage collaborative exploration of complex, interconnected ideas. His theories underline the importance of integrated curricula, where adults can benefit from interdisciplinary perspectives, developing critical insights by engaging with challenges that mimic real-world scenarios (Hung et al. 2014). This research framework uses the aforementioned four interconnected variables—interdisciplinary learning, collaboration, critical thinking and inquiry-based learning—to analyze how adult learners can enhance their capacities through educational models grounded in Dewey's progressive vision.

The notion of Attitude, as perceived in this research, matches the one described in Pandonge and Balol's "Perceptions of Certified Teachers About the Applying Scientific Approach in Teaching Process" (2021). It can be defined as the way a person can have an opinion about a particular subject, an idea that is affected, shaped and also limited by the sensory stimuli of each individual (55). Koentjaranigratm (as cited in Menali and Kuswardami 2022), in addition to the known five senses, claims that attitude and perceptions are also formed by emotions, motives, background (both educational and social), experiences and the whole mindset of each person. The corresponding items in the questionnaire examine whether adult educators in Greece have a positive attitude towards edu-larps.

Interdisciplinarity refers to a methodological approach that utilizes knowledge from different scientific fields to achieve a thorough and in-depth understanding of a specific issue (Michailidis and Zikos 2016, 16). According to Newel's "The State of the Field: Interdisciplinary Theory" (2013), this approach seems to be taking over since its ultimate purpose is the application of newfound knowledge and the subsequent improvement of our society in general. The corresponding items in the questionnaire examine whether adult educators believe that through the implementation of edu-larps two or more subjects can be taught simultaneously.

Halili et al. (2015) state that the notion of Collaboration "refers to two or more trainees that work together, helping each other in pursuance of achieving progress towards three different fields: cognitive, social and the cultivation of critical thinking" (55). In essence, it constitutes the essential link of a team-based process that enhances social constructivism, meaning the construction of knowledge through human interaction, utilizing the stating of questions, the adoption of shared goals as seen through different perspectives, all the while being in a state of constant negotiation of ideas, attitudes and beliefs (Sun and Kang 2021). The corresponding items in the questionnaire examine whether the use of edu-larps promotes collaboration among educators that implement them and among trainees that partake in educational scenarios.

Critical thinking is a rather complex notion and as thus a single definition cannot correctly express it. In this research, is effectively delineated by the words of Brookfield, as cited in Telemaque's "The Power of Critical Theory: Liberating Adult Learning and Teaching" (2011), who states that critical thinking is a thought process which is based on personal experience to attribute meaning in theoretical and abstract subjects. This process is considered the dynamic link between theory and practice (346). Moreover, Brookfield transfuses multiple dimensions in critical thinking, associating it with liberation, democracy, socialization, authority and logic. In essence, the fostering of critical thinking aims at the upskilling of a person's cognitive functions for them to realize which choice is suitable for the situation that ails them (Larsson 2017). The corresponding items in the questionnaire examine whether the implementation of edu-larps cultivates the skill of creativity/critical thinking among the trainees.

Lastly, Houghton et al. in "Truth and Reconciliation Through Inquiry-based Collaborative Learning" (2022) mention that Inquiry-based learning is about an educational "process where learners are involved in their learning, formulate questions, investigate widely and then build new understandings, meanings and knowledge" (3). It is considered a method that allows trainees to thoroughly examine a subject, promoting collaboration among themselves and also with their educator-facilitator, granting them the reins of being solely responsible for the whole learning process, according to the notion of self-regulated learning, the cornerstone of adult education (Archer-Kuhn and MacKinnon 2020; Wright 2018). The corresponding items in the questionnaire examine whether using edu-larps promotes Inquiry-based learning, enabling trainees to self-regulate their own pace in learning.

Besides these variables, this research examined whether the educators' demographics determine their perceptions. The theoretical framework that is described above is depicted graphically in the following figure (Figure 1).

## 6. METHODOLOGY

This study employed a quantitative research design to investigate the perceptions of adult educators in Greece regarding educational live-action role-playing games (edu-larps) as a teaching method. By utilizing a structured survey, the study aims to assess the impact of edu-larps on core skills critical to adult education, such as interdisciplinarity, collaboration, critical thinking, and inquiry-based learning. The quantitative approach was chosen to allow for statistical analysis of educators' responses, enabling robust insights into patterns and correlations between demographics and perceptions of edu-larps. This approach aligns with research on adult

learning interventions, which often leverage quantitative methods to capture current educational trends and educator attitudes (Yildirim et al. 2016; Zafiropoulos 2015).

**Figure 1**

*Theoretical Framework*
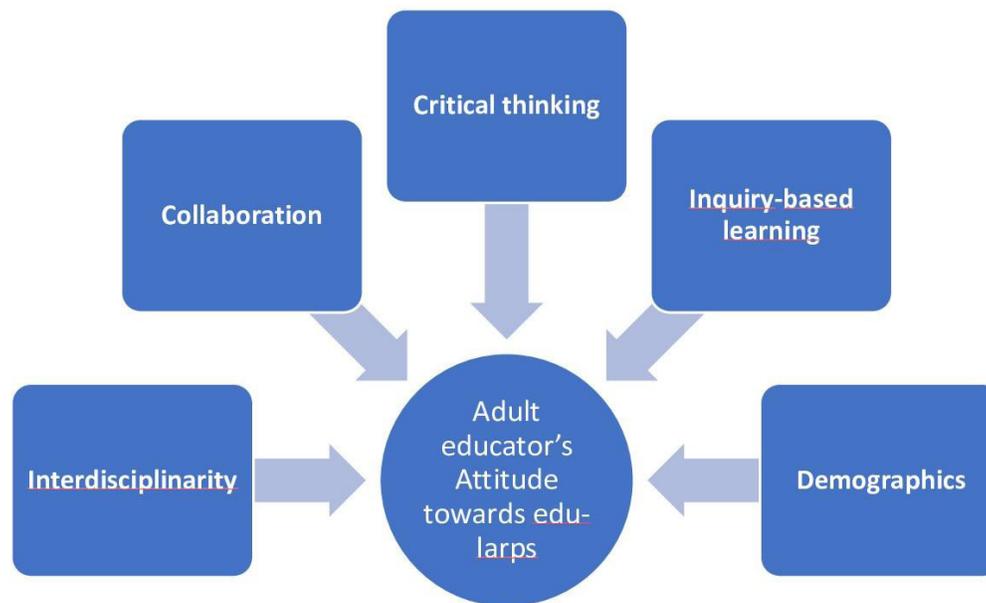


**Figure 1:** Theoretical framework.

The research questions guiding this study focused on the attitudes of adult educators toward the integration of edu-larps and their views on how edu-larps influence essential adult learning skills. These questions were formulated to examine not only the educators' general perceptions but also how these perceptions are shaped by factors such as prior training, years of experience, and certification level, following the example of previous surveys about attitudes (Ernawati et al. 2022). The main research questions are as follows:

1. What is the attitude of adult educators in Greece about the use of edu-larps as a teaching method?
2. Which factors affect adult educators' attitude towards using edu-larps as a teaching method?
3. To what extent do adult educators believe that edu-larps can enhance the necessary skills of adult learners?
4. To what extent do the demographics of adult educators affect the implementation of edu-larps?

Currently, there is a lack of research focusing on the perceptions of adult educators regarding the utilization of edu-larps. Moreover, there is minimal academic interest in Greece concerning the implementation of role-playing games in adult education. These factors posed significant challenges in developing a valid and reliable questionnaire. In the end, the research was conducted with a modified version of the questionnaire used by Al Basha (2018) in his research regarding teachers' perceptions and implementation of STEM Education in The United Arab Emirates. The specific research tool was chosen for two reasons: first, Al Basha studied educators' perceptions on the use of a particular educational approach, which is quite similar to methods such

as edu-larps, drawing information from numerous credible and contemporary sources. Second, the included concepts, except for Engineering and Design which was removed, are largely related to edu-larps and their application, according to numerous experts (Bowman and Standiford 2015, 8; Branc 2016, 34; Daniau 2016, 435; Geneuss et al. 2020).

The resulting questionnaire is comprised of two separate sections: the first features 32 items using a five steps Likert scale that are grouped in the five variables that were mentioned above, whereas the other is the demographics section, in accordance to Zafiropoulos' recommended format in "How to Conduct a Scientific Project: Scientific Research and Writing" (2015). The original questionnaire had one extra variable that was dropped entirely, as it was focused on Engineering and Design. Additionally, three items were dropped (one from Interdisciplinarity and two from Inquiry-based learning). Of course, some of the remaining items had to be rephrased or even slightly altered to have some meaning in matters concerning edu-larps.

In relation to the section concerning demographic characteristics of the sample, these encompassed inquiries into the gender of educators, their age, years of experience in adult education, training in principles of adult education, and certification status. The selection of these specific questions was informed by a review of recent research focusing on innovative teaching methods (Xafakos and Tzika 2022).

All the resulting modifications were based upon the observations and suggestions of a 3-member focus group that served as a small-scale pilot survey, and were completed after vast conversations. One member of this group was an academic, a seasoned researcher of a public institute with extensive knowledge about edu-larps; another was the founding member of Gamecraft, a company that first utilized larping in educational context in Greek museums and an academic, and the last one was an experienced trainer of adult educators. Each of them has at least five years of working experience in Second Chance Schools and/or Vocational Training Institutes. The composition of the focus group was purposely made in this, having an expert in each of three relevant fields: research, edu-larps and adult education. The final version of the questionnaire was translated into Greek and afterwards back to English, with the help of a native English speaker (back translation).

## 7. RESULTS

Research was conducted using convenience sampling via an on-line questionnaire that was distributed with Google forms from the 20th of May to the 4th of July 2023. The link for this questionnaire was sent to all the Second Chance Schools in Greece, that is the entirety of educational institutions that belong to formal adult education, three Vocational Training Institutes (the only ones that formally accepted the request for participating in the research) and Facebook groups of adult educators/trainers. Ohei and Chukwuere (2022) come to the conclusion that all social media platforms, including Facebook, can be a valid academic ground for quantitative research. Conducting research in this manner presents multiple advantages, particularly concerning cost, duration, and the ease with which statistical data is collected and coded. Simultaneously, the ubiquity of Facebook offers unique opportunities for eliminating geographical distances, thereby facilitating the creation of a sample that is not constrained by specific local cultures or particularities (Baker 2013). The questionnaire was accompanied by a cover letter that briefly explained what edu-larps are and introduced the research conductor (see Index). Second Chance Schools are educational institutes for adults aged 18 and older who have not completed the mandatory nine years of education. Currently in Greece there are about eighty Second Chance Schools operating. These institutes are considered part of the formal educational system in Greece, since their graduates receive a high school diploma (Vocational Institute of Greece 2021). Regarding the Facebook groups, the survey was distributed to two specific groups: one with a primary focus on adult education in general, boasting six thousand members and the other specifically created for educators working in Second Chance Schools or Vocational Training Institutes, totaling four thousand members. It must be clarified that there is significant overlap between the two groups' memberships. The approach used here is what

Macrì and Tessitore (2011) refer to as a massive contact approach, which is an appropriate choice for targeting a specific sampling group—in this case, adult educators.

All the stages of this process were in perfect accordance with the General Data Protection Regulation 2016/679, having acquired the relevant license from the General Secretariat of Vocational Education, Training and Lifelong Learning. The quantitative results were extracted using inferential statistics and factor analysis, applying Jamovi version 2.3.18 (Fox and Weisberg 2020; R Core Team 2021; Revelle 2019; The Jamovi project 2021). The sample was formed by 113 adult educators in total. This number means that the response rate was rather low but since the sample exceeds the minimum requirement of 100 for the statistical analysis that followed, the results that arose can be considered valid.  The mean age of the sample was 42 years old. More than 70% of the sample has working experience in adult education for 1-10 years, and more than half (55%) have at least a seminar certification in adult education. Most of the adult educators who answered the questionnaire worked for a Vocational Training Institute or a Second Chance School, while a few took part in Erasmus+ programs. Nearly 70% of the sample consists of certified adult educators, which means they are recognized by the Greek Ministry of Education as possessing the necessary qualifications and pedagogical competence to teach adult learners. This particular certification is an asset for adult educators but is not considered a prerequisite for teaching.

Regarding the reliability of the questionnaire, it was proven to be relatively high. More specifically, the individual Cronbach's alpha of the five variables was between 0.934 (Critical thinking) and 0.841 (Collaboration). The overall Cronbach's alpha was even higher, scoring 0.949. The validity, convergent-divergent, was checked via Cross loading, and was proved acceptable. Further tests provided a KMO: 0.875 and Barlett's test of sphericity scored a 2169 (df= 435, p<0.001), meaning that the factor analysis used was a reasonable choice, once again taking into consideration the size of the sample. Overall, the perception/attitude of adult educators toward edu-larps is a positive one. The same is true about the notion that edu-larps can indeed enhance the various skills that are related to adult education. The means and standard deviation of these answers are shown in Table 1.

**Table 1:** Descriptives.

|  | **Attitude** | **Interdisciplinarity** | **Collaboration** | **Critical thinking** | **Inquiry-based learning** |
|---|---|---|---|---|---|
| Mean | 4.04 | 3.90 | 3.55 | 4.06 | 3.91 |
| Standard deviation | 0.694 | 0.667 | 0.698 | 0.651 | 0.710 |

For this research, it was considered highly important that the way adult educators perceived edu-larps, their attitude towards this teaching method, and their correspondent relation with the four variables that comprise a vital part of the essence of andragogy and adult education. Table 2 depicts the correlation between the five variables, using Pearson's correlation coefficient (Pearson's r).

These results indicate statistically significant robust and positive correlation between all variables, except for Collaboration, which although statistically significant, can be considered moderate, positive. The four independent variables explain how the sample understands edu-larps and explains its attitude towards them. This fact led to a deeper level of analysis, to conclude to the exact extent of this connection. This was done with the $R^2$ test. The results are depicted in Table 3.

**Table 2:** Correlation matrix.

|  | **Attitude** |
|---|---|
| Attitude | — |
| Interdisciplinarity | 0.722*** |
| Collaboration | 0.419*** |
| Critical thinking | 0.758*** |
| Inquiry-based learning | 0.710*** |

**Table 3:** $R^2$ Linear Regression.

| **$R^2$=0.601** | **B** | **t** | **p** |
|---|---|---|---|
| Interdisciplinarity | 0.2733 | 3.030 | 0.003 |
| Collaboration | -0.0406 | -0.516 | 0.607 |
| Critical thinking | 0.5161 | 4.336 | <.001 |
| Inquiry-based learning | 0.0872 | 0.800 | 0.426 |

Critical thinking and Interdisciplinarity have a linear influence on the Attitude of adult educators towards using edu-larps.

In order to assess the correctness and validity of the investigation into the correlation of variables through Linear Regression $R^2$ and to avoid the phenomenon of multicollinearity, the technique of Variance Inflation Factor (VIF) was used. The results are presented in Table 4.

It is observed that in the Collinearity Statistics, the values of the Variance Inflation Factor (VIF) are below 5, and the values of the Tolerance index are above 0.2. Therefore, there are no multicollinearity issues. It should be noted that also in this analysis, particular emphasis is placed on the concepts of Interdisciplinarity and Critical Thinking, underscoring the assertion that these variables exhibit a robust association with the overall stance of the sample regarding the integration of edu-larps in adult education.

As for demographics, there is no statistically significant differentiation in the teachers' perception regarding their demographics regarding sex, age, working experience and certification in adult education. There was a statistically significant differentiation in the answers that consisted of the variable of Collaboration (and only this variable) regarding the level of further education in adult education (seminar, bachelor degree, master or PhD). Those teachers who had a higher level think that edu-larps promote collaboration more. This differentiation was a result of the ANOVA test.

**Table 4:** Variance Inflation Factor (VIF).

| **Model Fit Measures** | | | | | | |
|---|---|---|---|---|---|---|
| **Overall Model Test** | | | | | | |
| **Model** | **R** | **$R^2$** | **F** | **df1** | **df2** | **p** |
| 1 | 0.775 | 0.601 | 34.3 | 4 | 91 | <.001 |

| Model Coefficients - Attitude | | | | | |
|---|---|---|---|---|---|
| **Predictor** | **Estimate** | **SE** | **t** | **p** | **Stand. Estimate** |
| Interdisciplinarity | 0.2794 | 0.0922 | 3.030 | 0.003 | 0.2733 |
| Collaboration | -0.0366 | 0.0710 | -0.516 | 0.607 | -0.0406 |
| Critical thinking | 0.5206 | 0.1201 | 4.336 | <.001 | 0.5161 |
| Inquiry-based learning | 0.0871 | 0.1088 | 0.800 | 0.426 | 0.0872 |

| Collinearity Statistics | | |
|---|---|---|
| | **VIF** | **Tolerance** |
| Interdisciplinarity | 1.86 | 0.539 |
| Collaboration | 1.41 | 0.707 |
| Critical thinking | 3.23 | 0.309 |
| Inquiry-based learning | 2.71 | 0.370 |

## 8. DISCUSSION

Based on the survey results, the perspectives of the sample regarding the use of educational live-action role-playing games (edu-larps) as a teaching method are quite positive. Educators recognize that the nature and characteristics of edu-larps align well with the principles of adult education, and can be used for cultivating valuable skills and abilities that are fundamental to its philosophical core, as stated by Beckett in "Adult Learning: Philosophical Issues" (2011). This alignment is important for both educators and organizations overseeing adult education institutes, as these skills are essential for the modern, active citizen of the 21st century (Osuafor and Samuel 2015).

One significant factor that influences the usage of edu-larps is the interdisciplinary potential of edu-larps, which can adapt to any teaching subject or multiple subjects simultaneously, a versatility often lacking in traditional teaching methods (Beckett 2011). The constructivist nature of edu-larps appears to be one of the key advantages of this method, providing educators who utilize them with a valuable teaching tool. As von Glasersfeld aptly notes (as cited in Chalkia 2020), "knowledge is viable within the domain of the subject's experiences." Additionally, the findings suggest that educators' perspectives on the encouragement of collaboration are influenced by their level of further education in adult education. More informed educators are more likely to adopt innovative teaching methods, recognizing the multifaceted role they need to embrace to better address their trainees' needs (Lacanienta 2022). Furthermore, the concept of critical thinking and its cultivation is identified as the most pivotal factor affecting the implementation and efficacy of edu-larps in pedagogical practices, as reported by the instructors in the sample. The statistical analysis reveals a substantial correlation between critical thinking and the overall disposition of the sample, a discovery that merits further scholarly examination.

The sample also believes that edu-larps can significantly enhance the necessary skills of adult learners, particularly critical thinking and inquiry-based learning. Critical thinking, which tends to diminish in adults, is integral to edu-larps, making its cultivation through this method vital (Bowman 2014). Furthermore, the constructivist nature of edu-larps allows trainees to independently reach new knowledge and gives it personal meaning, thereby promoting inquiry-based learning (Khan 2017). Overall, the sample indicates that edu-larps

represent a method capable of effectively developing all the essential skills of adult learners, as defined in this study. The concepts of critical thinking and interdisciplinarity emerge as predominant factors, significantly influencing the overall attitudes of the instructors who participated in the research.

The demographics of the sample seem to play a minor role in the implementation of edu-larps. That is something that is already stated in other researches that focus on innovative teaching methods (Thurlins et al. 2015). Educators who stay updated with modern methods and possess a holistic understanding of education are more likely to implement edu-larps effectively. This approach enriches both the role of educators and the overall experience of trainees, addressing their cognitive, social, and emotional needs (Schmit et al. 2009; von Glasersfeld cited in Chalkia 2020).

## 9. LIMITATIONS

While the research successfully addressed its primary questions, several factors limit the extent to which these findings can be generalized. First, it is essential to highlight that this study represents an initial, exploratory investigation into adult educators' perspectives on an educational method still relatively unknown in Greece. This exploratory nature inherently raises questions about the broader applicability of the findings—a topic to be further examined in the following sections. Notably, one of the main constraints is the relatively small sample size (n=113). Although this number was adequate for conducting statistical analyses, it is not ideally representative of the larger population of adult educators in Greece, which limits the ability to claim uniformity in responses.

Additionally, the limited interest from non-formal educational institutes, likely due to the study's overlap with the end of the academic year, restricted participation from a broader range of adult educators. Many Vocational Institutes, in particular, could not engage due to their examination schedules, which prevented them from dedicating the time needed to complete the survey. Further, a lack of familiarity with the specific definition of edu-larps may have contributed to some educators' hesitance to participate or complete the questionnaire.

Another potential source of bias may stem from adult educators' limited experience with implementing edu-larps in Greece. This unfamiliarity could influence their responses and, consequently, the overall results of the survey. Responses might also vary based on each institution's infrastructure and technical capabilities, as well as the extent to which the subject curriculum aligns with the unique aspects of edu-larp methodology. Lastly, there remains the possibility that participants may not have fully understood the concept of edu-larps during the quantitative phase. Documenting participants' emails for follow-up interviews could have helped clarify any misunderstandings, providing additional insight into their perspectives

## 10. CONCLUSION

In conclusion, edu-larp seems to hold significant potential to benefit adult education, which has been stagnant for decades, especially in Greece. One of the European Commission's targets for member states' education policies by 2020 was to achieve a participation rate of at least 15% in adult education and training. In Greece, however, this rate stands at approximately 10.8%, indicating that adult education is not prioritized by national policy (European Commission 2020). Furthermore, a recent article from a reputable national newspaper notes that the corresponding rate for 2022 has dropped to 4% (Liakos 2023). Finally, a longitudinal study comparing adult participation in education and training programs in 2011, 2016, and 2022 reveals a general decline, with the exception of unemployed individuals (Hellenic Statistical Authority 2023). These programs, however, are funded by European funds, providing participants with financial compensation upon successful completion. Overall, although there is an intention for restructuring supported by the National Recovery and Resilience Plan, the results remain limited. The new legislative and administrative initiatives aimed at improv-

ing vocational training, evaluation, and the quality of education have not been sufficiently tested in practice, while some key issues, such as maintaining quality standards and enhancing business involvement, remain unresolved. Additionally, there are valuable practices and expertise from the past that can be utilized; however, further expansion and clarification of the existing regulations are required (DiaNeosis 2021).

The positive reception of edu-larps by the research sample indicates a strong potential for their wider implementation. Specifically, the emerging relationship between educators' perspectives and their overall attitude towards fostering creative thinking is a finding that warrants thorough investigation. In recent years, critical thinking and creativity have become central skills for educational personnel at all levels, and rightly so. As noted by Saad et al. (2021), it is imperative for trainees to be equipped with the ability to think in diverse and innovative ways to successfully navigate rapidly changing work environments and compete effectively in the global economy. Future research should explore the implementation of edu-larps in diverse educational settings and investigate their long-term effects on learners' skills and attitudes. This should also include specific scenarios that will be used in different test groups, in order to measure the trainees' reactions and perceptions. Since there is little to no research in Greece about edu-larps that focuses on adult learners, it is vital to examine the learning outcomes of this method and their resilience in time. It is necessary to investigate whether the edu-larp methodology can enable adult learners to achieve high scores in subject matter tests, as Mochocki claims that is the case for high school students who have participated in relevant quantitative researches in "Larping the Past: Research Report on High-School Edu-Larp." (2014). Additionally, more comprehensive studies could provide a deeper understanding of how edu-larps can be better integrated into existing curricula, ensuring that both educators and learners benefit from this innovative teaching method. This is something that would also be benefited via interviews and in-depth conversations with educators that frequently employ edu-larps in their teaching.

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**APPENDIX A: Questionnaire**

Dear Colleague,

The following questionnaire was created as part of my thesis for the Master's Program in adult education at the University of Macedonia. It contains several statements regarding the integration of educational live-action role-playing games (edu-larps) in adult education. Edu-larps are an evolution of traditional role-playing games, widely used as a teaching technique, where all learners adopt either pre-planned or improvised roles and interact with each other, attempting to complete an educational scenario. Educators assume the role of facilitators, encouraging learners to successfully meet the objectives, which often take the form of puzzles, riddles, etc. Most often, this facilitation occurs within a theatrical interaction, in which the educator also participates. The primary difference between live-action and traditional role-playing games is that, in the former, the entire class—educators and learners alike—participates collectively and simultaneously, with no one taking on a "passive" observer role. Additionally, in some cases, participants in edu-larps may use various props or even wear specific costumes, though this is not mandatory.

Your participation in this research is invaluable, and I kindly ask that you respond sincerely, following the provided instructions. Your responses are anonymous in all phases of the research, and any collected data is confidential and will be used exclusively for research purposes.

Thank you in advance for your participation.

Sincerely,

Ilias Tsiaras

**Questionnaire**

All the items in this part were to be answered via a 5 grade Likert scale (1: Totally disagree to 5: Strongly agree)

**Attitude**
- Teaching through edu-larps has a relation with what we experience in the real world.
- The implementation of edu-larps promotes trainees' critical thinking.
- The implementation of edu-larps cultivates decision making skills.
- The implementation of edu-larps enhances problem solving skills.
- Teaching through edu-larps is focused on learning outcomes.
- Teaching different class subjects simultaneously through edu-larps enhances learning more than teaching each separate subject separately.
- Teaching through edu-larps is a connection between different subjects within an authentic context that enhances trainees' learning.

**Interdisciplinarity**
- Through the implementation of edu-larps trainees learn concepts that go beyond the limits of one specific

subject.
- The implementation of edu-larps can address interdisciplinary, multi-perspective viewpoints to various issues.
- Instructions are an integral part of edu-larp scenarios.
- Different physical sciences subjects can be taught simultaneously through edu-larps.
- Different human sciences subjects can be taught simultaneously through edu-larps.
- Through edu-larps can be taught simultaneously in both physical and human sciences.

**Collaboration**
- Educators that use edu-larps share their knowledge, in order to promote the implementation of this method.
- Educators that use edu-larps share their resources, in order to elevate the implementation of this method.
- Educators that use edu-larps share their ideas and scenarios.
- Educators that use edu-larps communicate in order to refine their teaching practice.
- There is constant training/further education of educators about the utilization of edu-larps.
- Through edu-larps trainees talk to each other and negotiate their solutions.
- Through edu-larps trainees improve their communication skills.

**Critical thinking**
- Problem-based learning is an important element of edu-larps.
- Through edu-larps I guide my trainees to develop interdisciplinary viewpoints for each given problem.
- Through edu-larps trainees can identify the problem and what needs to be done in order to solve it.
- Through edu-larps trainees do research and gather information from different disciplines about the given problem.
- Through edu-larps trainees develop probable solutions supported by evidence.
- Through edu-larps trainees share, communicate and refine their solutions.
- Through edu-larps are presented obstacles that require problem- solving skills, challenging trainees to think critically.

**Inquiry-based learning**
- Through edu-larps I promote inquiry skills in my class by raising questions that the trainees need to investigate.
- Through edu-larps trainees present results and reflect on them in a critical manner.
- Before I go through with an edu-larp scenario, I first present the scientific facts.
- Scientific facts promote knowledge and skills for personal and societal decisions.
- The inquiry process provides more questions and requires higher thinking skills.

**Demographics**
- Gender: Male ____    Female ____
- Age:  23-30 ____    31-40 ____    41-50 ____    51-60 ____    60+ ____
- Years of experience in adult education: 1-10 ____    11-20 ____    21-30 ____    30+ ____
- Further education in adult education principles: None ____    Seminar ____    Bachelor ____    Master ____ PhD ____
- In which educational institute do you use edu-larp scenarios? Second Chance School ____ Vocational Training Institute ____ Vocational Training Center ____ Parental School ____ Other institute (please specify) ____
- Certified adult educator?
- Yes ____    No ____

**Ilias Tsiaras** is a secondary education science teacher with a strong academic background, holding a Master of Education degree in Special Education and a Master of Arts in adult education. As a veteran *Dungeons & Dragons* player and Dungeon Master, his research interests focus mainly on the use of analog role-playing games in educational settings. Currently, he is pursuing a Master's degree in Transformative Game Design at Uppsala University.

**Vasileios Neofotistos,** Ph.D., is a member of the Laboratory Teaching Staff in the Department of Educational and Social Policy at the University of Macedonia. He is an expert in the domain of ICT teaching issues, with extensive experience in the field of education. His professional background includes 11 years of experience in primary education and 11 years in secondary education. In addition to his teaching experience, he has also gained expertise in educational research methodology and adult education as a researcher. In the domain of adult education, he has accumulated over 6,000 hours of teaching experience across diverse training and educational programs.

# Rewriting the Rules: Game-based Learning for Affective and Cognitive Student Engagement in an Undergraduate History Course

**Abstract:** Constructivist psychology has long demonstrated the potential for play to offer various benefits to learning. This study introduced active game-based learning experiences, in the form of role-playing games, into an undergraduate history course that also included passive lecture and discussion elements. Mixed methods student feedback surveys were used to examine the impacts of game-based learning on students' affective and cognitive engagement in the course and offer a comparison between the lecture and game-based learning experiences. Qualitative data were analyzed through the paradigm of Mohsen, Abdollahi, and Omar's (2019, 518-520) framework for educational value, including affective evaluation, conceptual understanding, skill development, and experiential learning. Students' affective and cognitive engagement during game-based learning were consistently high. While students expressed a slight affective preference for lecture, their cognitive engagement was significantly higher during game-based learning, highlighting benefits beyond those offered by lecture. These results are situated within the context of the extant literature on game-based learning and student engagement and the need for continued exploration of beneficial connections between these constructs, specifically within the higher education classroom setting.

**Keywords:** game-based learning, student engagement, undergraduate education, history education, affective engagement, cognitive engagement

**Rachel M. Hoke**
*University of Pennsylvania*
*University of South Carolina, USA*
*rhoke@upenn.edu*

**James Risk**
*University of South Carolina, USA*
*risk@mailbox.sc.edu*

## 1. INTRODUCTION

From its origins in the work of Piaget, Vygotsky, and other developmental psychologists (Waite-Stupiansky 2017, 12) to 21st-century theories of game-based learning (Domínguez et al. 2013, 381-384; Kapp, 2012), the concept of *play* has long been known as an integral part of learning. In fact, Socrates argued that proper play in education leads to responsible citizenry (Carnes 2018, 29). However, while Piaget's theories accounted for changes in the complexity of play aligned with cognitive development (Plass, Homer, and Kinzer 2015, 259-260), his work is often only associated with young children. *Gamification*, which brings game-like elements into a non-game context (Deterding et al. 2011, 2), incorporates understandings from the constructivist school of developmental psychology to which Piaget and his peers belonged, using play to generate motivation and engage students in decision-making and collaborative problem-solving toward a pedagogical goal (Castillo-Parra et al. 2022, 811-813). From gamification evolved *game-based learning,* "a type of game play with defined learning outcomes" (Plass, Homer, and Kinzer 2015, 259).

Game-based learning takes multiple forms in the classroom, predominantly as digital games, but increasingly including role-playing games (RPGs), live action role-playing games (larps), and other analog formats (Brom et al. 2019, 66-67). Larps used as educational tools, commonly referred to as edu-larps, aim to harness motivation, immersiveness, and interactivity to stimulate learning (Bowman and Standiford 2015,

17-20; Brom et al. 2019, 65-66). Westborg (2023, 20-24) further categorizes different types of games as either *leisure games, RPGs in education, stand-alone educational RPGs*, or *educational RPGs/edu-larp*. Each type is delineated based on its framing and gameplay design as either leisure or educational, and games of all four types may include role-playing components. This study utilized an *RPG in education*, or educationally-framed leisure game or simulation whose gameplay has been adapted to fit learning objectives; and four *educational RPGs/edu-larp*, or games whose framework and gameplay were intentionally designed to meet learning objectives (Westborg 2023, 21-22).

Central to the use of game-based learning are its connections to student engagement, or "meaningful student involvement throughout the learning environment" (Martin and Torres 2016, 2) that positively impacts learning outcomes. While students' enjoyment of their coursework alone is not enough to ensure learning (Chew 2022), meaningful engagement, which encompasses affective, behavioral, cognitive, and social domains, is critical to academic success (Bond et al. 2020, 3-4; Bowden, Tickle, and Naumann 2021, 1212-1213; Wu, Van Veen, and Rau, 725). We focused our investigation on the potential impacts of game-based learning on *affective engagement,* defined as students' perceptions of and satisfaction with the learning experiences (Bowden, Tickle, and Naumann 2021, 1212; French, Mulhern, and Ginsberg 2019, 3), and *cognitive engagement,* or the degree to which students are meaningfully involved in learning in a manner that contributes to course learning outcomes (Martin and Torres 2016, 2; Tang and Hew 2022, 5).

This study contributes to the literature on game-based learning in higher education, an area of growing interest but limited systemic investigation (Castillo-Parra et al. 2022, 799-804). We examine how the relationships between game-based learning, specifically edu-larp and other RPGs, and student engagement as evidenced in other educational settings (Bowman and Standiford 2015, 9; Brom et al. 2019, 72) and disciplines (Contreras-Espinosa and Eguia Gomez 2020, 805; Freeman et al. 2014, 8412; French, Mulhern, and Ginsberg 2019, 4) might apply in undergraduate history courses. We supplemented the lecture and discussion formats of one such course with game-based learning experiences to investigate these connections through the following research questions:

1. How does the use of role-playing games impact students' affective engagement, or perception of learning?
2. How does the use of role-playing games impact students' cognitive engagement?
3. What differences exist in affective and cognitive engagement between students' experiences with game-based learning and lecture formats?

## 2. GAME-BASED LEARNING EXPERIENCES

### 2.1 Context

As a strategy to increase student engagement with course content, the College of Arts and Sciences at University of South Carolina implemented a themed semester based on Piaget's theory of play. This play-themed semester was the College of Arts and Sciences' third iteration of a themed semester, selected based on the College's philosophy that play can be "a powerful method of exploration that often results in finding a unique perspective that can lead to a truly original idea" (University of South Carolina, n.d.) and the growing evidence that active learning strategies, such as game-based learning, can improve students' academic performance (Freeman 2014, 8412-8413). These themed semesters provide instructors with opportunities to receive funding to develop and teach unique courses focused on special topics or innovative strategies related to the theme through the lens of their departmental discipline. The play-themed semester initiative provided the opportunity to reimagine an undergraduate history course by integrating role-playing games into course instruction as a complement to lecture and discussion components.

**2.2 Games**

The course, an undergraduate survey on the history of science and technology, incorporated five different games. These games were chosen for their alignment with course learning objectives and purposes of critical thinking, historical analysis, and teaching historical content. The course utilized one RPG in education and four edu-larps, as characterized by Westborg's (2023, 20-24) RPG design matrix. Some gameplay was modified to fit within the class meeting length or align with course learning objectives. The RPG in education game was pilot tested with the history department's graduate students prior to the semester. This pilot allowed the faculty instructor to assess where framing or gameplay modifications would be necessary to achieve course learning objectives. All games are described in table 1, which details the environment, game design, description, and structural modifications.

**Table 1:** Game detail.

| Game | Design | Description | Modification |
|---|---|---|---|
| Buul | RPG in education | Mayan war game with objective similar to checkers | None |
| *RTTP* Trial of Galileo | edu-larp | Reenactment of Galileo's trial | Time reduced to 1 class session |
| *RTTP* Babbage | edu-larp | Debate over merits of Babbage's difference engine | Time reduced to 1 class session |
| *RTTP* Charles Darwin | edu-larp | Reenactment of Royal Society debates of Darwin's research | Time reduced to 1 class session |
| Robert Yerkes' Army IQ Test | edu-larp | Simulation of U.S. Army IQ test given in 1910s | Shortened version to fit time limits |

**Note:** *RTTP* = Reacting to the Past games.

**2.3 Modifications**

*Buul*, also known as *Boolik* or *Puluc*, is an ancient Mayan leisure game played by warriors in preparation for battle, and it functioned here as an RPG in education. No modifications were made to actual gameplay, with the exception of modernized playing pieces. Instead of using rocks and pebbles, students used popsicle sticks and plastic disks. Although this game plays similarly to checkers and no role-playing is needed, students were instructed to assume the persona of an ancient Mayan warrior as they strategized their attack on the other player. Students were asked to conceptualize the game in that setting, thus considering how the Mayans thought about interactions with other tribes and peoples.

       The three *Reacting to the Past (RTTP)* edu-larp games were designed to be played over multiple class periods, which was not possible in the context of a large survey course. Each of these was reduced to a single class period. For instance, the *Trial of Galileo* is designed to be played over 13 class sessions. The first three

class sessions are setup sessions. Class sessions 4-7 center on the original inquisition of Galileo in 1616. Session 8 is an information session. Sessions 9-11 deal with Galileo's trial in 1632. Sessions 12 and 13 occur after Galileo's death (Petterson, Purnell Jr., and Carnes 2014, 43-44). Risk, the course instructor, completed all the setup (sessions 1-3) to avoid using class time.

The original inquisition and Galileo's *Dialogue of the Two Chief World Systems* (sessions 4-8) were covered in lecture, giving students the background information needed to play the game. The teaching assistants (TAs) leading the game sessions were instructed to focus gameplay on the Trial of 1632 (sessions 9-11), and students were randomly assigned their roles a week before the game session. The TAs debriefed the students after gameplay was completed to ensure connections to the learning outcomes (Lacanienta 2022, 71). This debriefing paralleled the game's post-mortem sessions (12-13). While students engaged with the material differently than in the original game design, we believe this experience achieved the same learning outcomes. Students still engaged in simulations of historical events and took part in the intended debates, albeit within a shorter time.

Similarly, *Babbage, Ada Lovelace, and the Dawn of Computing* was designed to be played over six game sessions and three labs. Per the gameplay instructions, the "instructor may omit the labs, and/or include more or fewer game sessions than those outlined here" (Meysenburg 2016, 35). As with the *Trial of Galileo* game, Risk completed all the setup prior to the game session. Students were randomly assigned their roles a week before the game session. The topic of Lab 3 was covered by a video discovered by one of the TAs, which provided a clear explanation of Babbage's analytical engine. Students then debated the merits of Babbage's analytical engine in the setting of a meeting of the Royal Society. The debate centered on whether the state should fund Babbage's engine (session 6). Here again, we do not feel the reduction of game time impacted the students' learning or reactions to the game. Similarly to the *Trial of Galileo* game, students still engaged in the simulation of the historical event and gained critical skills and knowledge by participating in the intended debates.

*Darwin, the Copley Medal and the Rise of Naturalism, 1861-1864* was designed to be played over eight class sessions (Driscoll, Dunn, Siems, and Swanson 2014, 27-31). Because the course learning objectives emphasized Charles Darwin and Alfred Russel Wallace, several sessions were deemed expendable without impacting the student learning objectives set forth in the syllabus. Session 2, examining Darwin's views and philosophy, was covered in the lecture portion of the class. The game was then set up to debate only Darwin's contributions to natural philosophy (session 7) compared to other philosophers discussed in lectures. While this may have impacted student learning about other philosophers discussed in the game, removing sessions 1, 3-6, and 8 did not change the intended learning of the course. Thus, the game was used more as a guide than strict adherence to the game rules.

Each of the original *RTTP* role-playing games included pre-configured writing assignments (essays, speeches, etc.) based on the individually assigned roles. These assignments were not always equitable, with more prominent roles given more assignments to complete. For this reason, none of the pre-prescribed writing assignments were required. Most students still completed them to become familiar with their assigned roles, but the assignments were never part of the graded exercise. While this may have altered students' understanding of their assigned roles, particularly if they did not complete the pre-configured assignments, we do not believe this modification adversely impacted the learning outcomes.

The Yerkes Army IQ test was not modified by the instructor, but rather by the source used to construct the activity. The article "Measuring Mental Fitness: Government IQ Tests during World War I" provides an abbreviated version of Robert Yerkes' Army IQ test from the 1910s (SILO 2016, 6-13). Risk demonstrated the test for each of the four TAs in the first of their three assigned discussion sections. The demonstration simulated the original 1910s testing environment as closely as possible. Students were not told about the test in advance. During the testing, Risk walked around the room telling students to "hurry up" and that they

were "running out of time" in a raised voice, simulating a drill sergeant raising his voice to new army recruits. The TAs were instructed to simulate that same environment in their remaining discussion sections.

## 3. METHOD

### 3.1 Setting and Participants

Participants ($n$ = 312) were undergraduate students enrolled in a synchronous, in-person history course. This course was a large, introductory survey on the history of science and technology with 312 undergraduate students, meeting three times a week for 50 minutes. Two meetings each week took place in a large lecture hall accommodating all 312 students and consisted of lectures on historical content given by the faculty instructor. The third meeting each week took place in smaller classrooms accommodating groups of 25 to 30 students each. These smaller meetings, commonly referred to as discussion sections, were led by teaching assistants (TAs). The discussion sections allowed students to delve deeper into lecture topics by focusing on a particular aspect of the lectures or a specific supplementary content item. The TAs implemented the game-based learning experiences in these smaller discussion sections under the guidance of the faculty instructor. The games replaced the weekly discussion of the lecture topic by engaging students in related historical role-playing scenarios.

*3.1.1 Ethics*

Our institution's IRB approved the study, and the data collection procedures anonymized participant identities. Student participants were informed via the course syllabus of the purpose of data collection, the expectations for completing feedback surveys, and the anonymity of their responses. Because all components of students' involvement were exempted as "normal educational practices" (OHRP 2021), additional consent was not required.

### 3.2 Data Collection

To examine how game-based learning impacted students' cognitive and affective engagement in the course, we collaboratively designed and piloted a mixed method student feedback survey to be deployed following each game session in the classroom. The survey instrument contained 12 questions, including a mix of Likert-style rating scales and open-ended responses, listed in table 2. Likert-style ratings ranged from 1 (lower engagement) to 10 (higher engagement), divided across three constructs: affective engagement (2 items, $\alpha$ = 0.86), cognitive engagement (2 items, $\alpha$ = 0.88), and comparison between game-based learning and lecture (2 items, $\alpha$ = 0.83). The remaining items consisted of open-ended questions relating to the same constructs.

The surveys were created in an electronic form tool and distributed to students following each game via links embedded into the course site in the institution's learning management system (LMS). Access to complete the form was restricted to institutional users, while access to the anonymous responses was restricted to only the authors. Following each game, students were asked to complete the survey at their convenience within a week. Participation was incentivized by offering extra credit toward their course grades for submitting a screenshot of their completion confirmation in the LMS. This strategy generated a 59% response rate while maintaining student anonymity. While Risk had de facto access to student identities and timestamped LMS submissions as the course instructor, Hoke had no access to any student data. Only Hoke had access to the raw form response outputs and removed the timestamps before sharing with Risk, thereby keeping the survey results anonymous to both authors.

**Table 2:** Student survey items.

_____

| Item No. | Item Text |
| --- | --- |

_____

1.1     On a scale of 1 to 10, with 1 being *low* and 10 being *high*, rate your satisfaction with this game as we played it in class.

1.2     On a scale of 1 to 10, with 1 being *very unlikely* and 10 being *very likely*, how likely are you to recommend this class to your friends based on your experience playing this game?

1.3     What, if anything, did you enjoy about playing this game in class?

1.4     What, if anything, did you dislike about playing this game in class?

2.1     On a scale of 1 to 10, with 1 being *not at all* and 10 being *very much*, how much did you feel that you were meaningfully involved in learning during the in-class game?

2.2     On a scale of 1 to 10, with 1 being *not at all* and 10 being *very much*, how much do you feel that this game contributed to achieving the course learning outcomes?

2.3     What specific knowledge or skills did this game help you to develop?

2.4     What would you change or improve about the use of this game in future courses?

3.1     On a scale of 1 to 10, with 1 being *low* and 10 being *high*, rate your satisfaction with the lecture sessions leading up to the game.

3.2     On a scale of 1 to 10, with 1 being *not at all* and 10 being *very much*, how much did you feel that you were meaningfully involved in learning during the lecture sessions?

3.3     If you were taking this course again, would you prefer to enroll in a section that includes a combination of lecture and gameplay (like this one), or one that includes only lecture?

3.4     In what ways was your learning experience playing this game different from your learning experience in the lecture sessions?

_____

### 3.3 Data Analysis

Data from the quantitative and qualitative portions of the student surveys were analyzed separately before being synthesized to draw conclusions.

*3.3.1 Missing Data*

Out of a total of 924 survey responses from all games, 20 were flagged for review due to instructor suspicion or a student's admission that they were not present for the game but had completed the survey anyway. Due

to the anonymous nature of the data, we could not definitively determine the legitimacy of these responses, representing 2.16% of the data. We elected to exclude these responses in favor of increased rigor, and independent-samples $t$-tests confirmed that this exclusion created no significant differences in the means of the quantitative items at $p < 0.05$.

### 3.3.2 Quantitative Analysis

Statistical analysis of the quantitative data was conducted using JASP 0.17.2.1. In light of the small number of quantitative items available to evaluate internal consistency, we conducted a confirmatory factor analysis to assess the construct validity of the survey (Atkinson et al. 2011, 559; LaNasa, Cabrera, and Trangsrud 2009, 318), along with descriptive statistics to provide an overview of students' reactions. To draw comparisons between students' affective and cognitive engagement during gamified learning versus lecture, we conducted a Wilcoxon signed-rank test due to the non-normal distribution of the responses.

### 3.3.3 Qualitative Analysis

The growing literature on game-based learning in higher education notes the influence of games on both the affective and cognitive domains of student engagement and the tendency for these factors to overlap (Bowman and Standiford 2015, 6-9; Ke, Xie, and Xie 2016, 1196). Based on the conceptual structure for educational value described by Mohsen, Abdollahi, and Omar (2019, 524-526), we developed an a priori analytical framework that included themes of *affective evaluation*, defined as affective or emotion-based reactions; *conceptual understanding*, defined as cognitive engagement with the game or course materials; *skill development*, defined as real-world cognitive, behavioral, and/or social skills utilized for participation in the games; and *experiential learning*, defined as characteristics of the games that directly influenced student engagement. Within this framework, we employed line-by-line concept coding (Saldaña 2016, 119-124) to represent and categorize the experiences identified in students' responses.

Students' narrative responses were exported to the CAQDAS tool Delve. The initial round of coding yielded 91 unique codes across 2,731 content items. Codes were tagged as belonging to one of the four educational value themes: *affective evaluation* (819 content items; 28 unique codes), *conceptual understanding* (542 content items; 14 unique codes), *skill development* (443 content items; 33 unique codes), and *experiential learning* (684 content items; 16 unique codes). Initial concept codes were reviewed to combine those that were redundant, followed by two subsequent rounds to group conceptually similar codes. This process, combined with review of researcher notes on emergent patterns, generated categories central to each of the four educational value themes.

## 4. RESULTS

Data from the quantitative and qualitative portions of the student surveys were analyzed separately before being synthesized to discuss the study research questions.

### 4.1 Quantitative Data

Quantitative analysis included a confirmatory factor analysis, descriptive and internal consistency statistics, and a Wilcoxon signed-rank test to compare game-based and lecture experiences.

*4.1.1 Factor Analysis*

We conducted a confirmatory factor analysis using a manual setting for three factors. The identified factors correlated with the study constructs as: Factor 1 = affective engagement, Factor 2 = cognitive engagement, and Factor 3 = perception of lecture, displayed in table 3. Factor loadings were identified at a minimum threshold of ≥ 0.4. While the survey items related to Factor 1 (affective engagement) loaded strongly on that factor, one item intended for Factor 2 (cognitive engagement) loaded more strongly on Factor 1. All items intended to relate to Factor 3 (perception of lecture) loaded onto that factor. This suggests that the concepts of affective and cognitive engagement as measured through this instrument may not be fully extricable from one another, but that students' perception of lecture-based learning environments can be measured independently.

**Table 3:** Pattern factor loadings.

| Item No. | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| 1.1 | **0.86** | 0.06 | -0.05 |
| 1.2 | **0.90** | -0.08 | 0.04 |
| 2.1 | 0.07 | **0.93** | 0.02 |
| 2.2 | **0.60** | 0.29 | 0.01 |
| 3.1 | 0.24 | 0.00 | **0.58** |
| 3.2 | -0.13 | 0.01 | **1.07** |

**Note:** Factor loadings (≥0.4) in bold. Factoring method: max likelihood. Oblique rotation method: promax.

*4.1.2 Student Reactions*

Descriptive statistics (mean, median, range, and standard deviation) were calculated for each quantitative survey item and are displayed in table 4. Students' mean ratings for each quantitative item were all greater than 7, with median scores of 8 (on a 10-point scale), indicating that students perceived both the lectures and game-based learning experiences favorably. Cronbach's alpha for each survey construct ranged from $\alpha = 0.83$-$0.88$, suggesting excellent internal consistency within each group of items. However, the large standard deviation and range exhibited across the data sets suggest high variability between individual student responses.

      Students rated their affective engagement, or satisfaction, during the games ($M = 7.77$) as slightly lower than their cognitive engagement, or meaningful involvement in learning ($M = 7.82$), during those same sessions. However, this perception was reversed during lecture, where students reported feeling very satisfied ($M = 8.22$), but far less meaningfully involved ($M = 7.70$). Overall, students rated their perception of lecture ($M = 7.96$), affective engagement ($M = 7.77$), and cognitive engagement ($M = 7.82$) as very similar.

**Table 4:** Descriptive statistics.

| Construct and Item No. | M | Mdn | SD | Ra | Cronbach's α |
|---|---|---|---|---|---|
| **Affective engagement** | **7.77** | **8** | **2.16** | **9** | **0.86** |
| 1.1 | 8.09 | 8 | 1.97 | 9 | |
| 1.2 | 7.46 | 8 | 2.29 | 9 | |
| **Cognitive engagement** | **7.82** | **8** | **2.11** | **9** | **0.88** |
| 2.1 | 7.88 | 8 | 2.07 | 9 | |
| 2.2 | 7.77 | 8 | 2.15 | 9 | |
| **Perception of lecture** | **7.96** | **8** | **1.97** | **9** | **0.83** |
| 3.1 | 8.22 | 8 | 1.78 | 9 | |
| 3.2 | 7.70 | 8 | 2.12 | 9 | |

**Note:** $M$ = mean, $Mdn$ = median, $SD$ = standard deviation, $Ra$ = range, $\alpha$ = internal consistency.

*4.1.3 Comparisons Between Game-based Learning and Lecture*

The distribution of student ratings for all items skewed heavily positive, with almost no students providing ratings lower than 4 (out of 10) on any single item. Because of this non-normal distribution, the nonparametric Wilcoxon signed-rank test was utilized to compare responses to parallel items rating affective engagement (items 1.1, 3.1) and cognitive engagement (items 2.1, 3.2) during game-based learning and lecture, respectively. Results are displayed in table 5.

**Table 5:** Comparison of game-based learning and lecture.

| Compared items | W | z | p | Effect size |
|---|---|---|---|---|
| 1.1 - 3.1 (affective) | 56341.500 | -1.80 | .07 | -0.09 |
| 2.1 - 3.2 (cognitive) | 73421.500 | 2.40 | .02 | 0.12 |

**Note:** $W$ = Wilcoxon signed-rank test. Effect size given as matched rank biserial correlation.

One comparison of items indicated a small preference for lecture (negative $z$ statistic), while the other indicated a stronger preference for game-based learning (positive $z$ statistic). Students reported a slight affective preference for lecture at a limited significance threshold ($z$ = -1.80, $p$ = .07), but they reported feeling far greater cognitive engagement during the game-based learning experiences ($z$ = 2.40, $p$ = .02).

**4.2 Qualitative Data**

Narrative survey responses were concept coded and tagged as belonging to one of the four educational value themes. Within these themes, individual codes were first placed into conceptually similar groups to describe student experiences, then the groups were organized into larger categories of responses within each theme. Table 6 displays a list of code groups and categories within each theme.

**Table 6:** Qualitative codes and categories.

| Educational value themes | Categories | Sub-groups |
|---|---|---|
| **Affective evaluation** | Procedural/organizational observations | Procedural observations |
| | | Gamification elements |
| | Relative enjoyment and/or satisfaction | Making learning fun |
| | | Challenges/negative reactions |
| | Intrapersonal reflections on experience/motivation | Sources of motivation |
| | | Reflections on experiences |
| **Conceptual understanding** | Enhanced content knowledge | Improved understanding |
| | | Factual knowledge |
| | Application of concepts | Application of concepts |
| | Contextual/cultural understandings | Contextual understanding |
| | | Enhanced cultural awareness |
| **Skill development** | Executive function and decision-making | Executive function |
| | | Decision-making |
| | Interpersonal communication and collaboration | Peer communication |
| | | Collaborative learning |
| | Critical thinking and reasoning | Critical thinking |
| | | Reasoning/synthesis |
| | Social-emotional intelligence | Social-emotional intelligence |
| **Experiential learning** | Personal connections and perspectives | Personal connection |
| | | Perspective-taking |
| | Ownership and self-awareness of learning | Student-directed |
| | | Supportive of diverse learners |
| | Social learning | Interactivity |
| | Active involvement in learning | Active involvement |
| | | "Hands-on" |

*4.2.1 Affective Evaluation*

Approximately 30% of all coded items consisted of affective evaluation of the game-based learning experiences, defined as affective or emotion-based reactions, falling into three categories.

**Procedural and organizational observations.** These were most frequently reactions to the amount of time allotted for the game or observations about gamified elements that students found notable, particularly aspects of competition embedded in the games. While there was some variability among opinions on time and pacing, most comments indicated a preference for more time allotted to gameplay. This may have been influenced by the instructor's modifications to several games to limit their duration. In related responses, students suggested allocating additional time and resources to individual or small group preparation, particularly for the debate and simulation edu-larp games.

**Relative enjoyment and satisfaction.** The largest portion of affective evaluations related to satisfaction with the game-based learning experiences, the majority of which were positive. Students observed that the games made learning fun, created a high-interest environment, and, as one participant stated, "I enjoyed how it made learning…fun and competitive. I feel like I'm more likely to retain information." Among students

who indicated lower satisfaction, challenges expressed included finding the gameplay difficult to understand or connect to the content, feeling stressed or anxious about public speaking or interacting, or simply disliking debate.

**Intrapersonal reflections on experience and motivation.** The remaining affective evaluations were self-reflective. Many framed the games as sources of motivation, sparking curiosity and integrating novel, surprising, and occasionally competitive elements. Students also found motivation in the sense of accountability to and collaboration with peers: "I enjoyed the opportunity to work with and share knowledge with classmates before the argument. Each person contributed ideas and strategies that were different." Students reported feeling more open to considering others' differing viewpoints and also acknowledged frustration when peers did not participate as fully as intended.

### 4.2.2 Conceptual Understanding

The smallest portion of unique codes related to students' conceptual understanding, or cognitive engagement, with the games.

**Enhanced content knowledge.** Students indicated nearly universally that the games strengthened their factual knowledge and deepened their understanding of the content. Some reasoning as expressed by students included, "it allowed me to be a part of what I was learning," "with everyone researching, I learned more," and "the game play lets me dive deeper into what we were learning and discover more interesting facts that I might not have noticed the first time."

**Application of concepts.** The games also invited students to apply content knowledge to role-play actual or hypothetical historical situations. Students reported that the games improved their ability to retain information, check understanding, and connect their learning to the modern world. Some suggested that lecture and gameplay served complementary purposes; as one student described, "In the lecture I feel like I learned a lot more about the content, whereas in the game it felt...more about how I would apply what I already knew."

**Contextual and cultural understanding.** Related responses featured observations that the games improved students' contextual understanding, particularly surrounding historical inequities, cultural biases, and the interplay between historical factors. Rather than explicit statements from the instructor, the games illustrated "subtle information about their culture...that a lecture wouldn't be able to explain."

### 4.2.3 Skill Development

Skill development, defined as real-world cognitive, behavioral, and/or social skills utilized for game participation, constituted the largest proportion of unique codes.

**Executive function and decision-making.** As edu-larp and other RPGs typically require player decision-making, this was identified as a skill necessary for success. Students noted that these decisions included strategizing and problem-solving, and that their participation provided practice with performing under stress in what was ultimately a low-stakes situation. They also engaged executive function skills, including organization, focused observation, time management, planning, and following directions.

**Interpersonal communication and collaboration.** The most widely reported skills related to peer communication and collaborative learning. In addition to enjoying interactions with classmates, many students identified peer interaction and communication as skills they practiced through role-playing. Students indicated that these collaborations enabled them to strengthen specific skills, such as listening, mediation, leadership, and flexibility, required them to work as a team, and improved their learning, as "working and discussing with peers helps me...understand the material much better."

**Critical thinking and reasoning.** Through preparatory exercises and gameplay itself, students engaged in a considerable amount of critical thinking, reasoning, and synthesis of information. Related skills, such as analytical reading, comprehension, and problem-solving, were challenged and sharpened. The complexity of several games involving role-play of detailed historical scenarios offered practice in research, logical reasoning, and developing evidence-based arguments, as described by one student, "I learned how to back up my argument, and do research to find stronger evidence for my topic. This helped me develop a stronger voice when it comes to explaining/arguing on why my side is right," a skill they later transferred to a research paper assignment.

**Social-emotional intelligence.** Though the course learning objectives did not explicitly address social-emotional intelligence, several students identified social-emotional skills or traits that were bolstered by the game-based learning experiences. These included confidence, creativity, patience, and empathy for the experiences of others. The most frequently reported trait strengthened through play was confidence, in statements such as, "I don't feel scared to speak up, I don't feel like I will be called stupid for my ideas or opinions." Related responses suggested that students, particularly those who initially felt anxiety about speaking in front of peers, experienced improved confidence and decreased stress due to the less formal atmosphere and the opportunity to practice these skills in multiple low-stakes activities throughout the semester.

*4.2.4 Experiential Learning*

In addition to the types of affective and cognitive engagement expressed by the first three themes, responses also identified experiential learning characteristics, or features of the games that directly influenced engagement.

**Personal connections and perspectives.** Students overwhelmingly observed that the game-based learning experiences aided them in making personal connections to the content and taking the perspectives of others, including historical figures in the games and their own classmates. Students stated that the games' immersive nature made history "more relevant and easier to comprehend." Particularly in the edu-larp format, students explained that "I felt like I was able to go back in time when I was playing," and it "helped me to think about the feelings and thoughts of others." In this format, students were assigned to roles by their TAs rather than selecting their own. While some found this challenging, others observed benefits: "Having to take a side that I would not have chosen if I had the option before the trial began was beneficial. It made me look at 'facts' of the times and try to construct an argument."

**Ownership and self-awareness of learning.** Students perceived the games as strongly student-directed and supportive of diverse learners. Several described the games as "student-led" and found it appealing that role-playing included high levels of autonomy and "choice." As primarily first- or second-year students taking a high proportion of introductory courses in traditional lecture formats, participants expressed surprise at their ability to engage through the games in "versatile" ways and "contribute to our own learning" through flexible options for non-verbal participation and "learning through what I was seeing." Students described the game environments as "inclusive and engaging" for those with diverse learning preferences.

**Social learning.** The games' interactive nature was among the characteristics students most frequently commented upon. Students reacted positively to the opportunity for increased peer interaction, describing it as "a much more interesting way to learn." The games were perceived as novel interactions compared to regular class discussion, described as "a unique way to interact with others to learn more about the content rather than just listening," and "playing the game allowed me to interact with my peers in a different manner than in the discussion sections."

Interactivity was heavily tied to perceptions of effectiveness. Students whose classmates did not engage as intended were quick to suggest that the instructor should "encourage everyone to be more involved." When participation was widespread and equitable, students noted it as an aspect they most enjoyed, as described following one game session: "I enjoyed...how involved we were as a class. Everyone participated and played a role."

**Active involvement in learning.** Active and immersive characteristics of the games were one of the most frequently mentioned topics in student responses across all themes. Students repeatedly described themselves as "more engaged and attentive" during games and "actively engaging and taking in the same information, just with a different method" compared to lectures. Over 100 unique responses specifically credited the "hands-on" nature of the games, as in one observation: "The game makes the learning hands-on, which makes me more attentive and active when absorbing knowledge."

This was closely tied to students' perception of the games as immersive, which they believed aided them in understanding content, retaining information, paying attention, and shifting their perspectives. The particular importance within the context of history was underscored by responses such as, "I feel more involved in the games than I do [in] the lectures because I get to play a role and put myself in history rather than just viewing it" and, "I enjoyed connecting to the historical population through playing the game because it made history feel more personal and relatable."

## 5. DISCUSSION

The evidence generated through student surveys has implications for each of the three research questions in this study:

1. How does the use of role-playing games impact students' affective engagement, or perception of learning?
2. How does the use of role-playing games impact students' cognitive engagement?
3. What differences exist in affective and cognitive engagement between students' experiences with game-based learning and lecture formats?

### 5.1 Affective Engagement

Affective engagement, defined as students' perceptions of and satisfaction with their learning experiences (Bowden, Tickle, and Naumann 2021, 1212; French, Mulhern, and Ginsberg 2019, 3-4), is a key aspect of students' emotions in the classroom. While positive emotions have long been under-researched in education (Goetz and Hall 2013, 192), they are believed to promote other pro-learning behaviors, such as motivation, problem-solving, and self-regulation (Castillo-Parra et al. 2022, 807-810; Pekrun 2016, 575-577). Quantitative data in this study indicate that students had positive perceptions of the game-based experiences, both when rating their own satisfaction ($M = 8.09$) and when reporting their likelihood of recommending the course to a friend ($M = 7.46$), evidence that this use of edu-larp and RPG in education led to positive affective engagement with the learning experiences.

Students' narrative comments support this conclusion. In particular, students characterized the experiences as "fun" on 111 independent occasions and observed that "having fun makes good learning." Students also noted that certain game aspects, such as novelty, competition, deception, and chance or luck, contributed to increased motivation that was not solely grade-related (Carnes 2018, 73) and that the role-playing nature of the edu-larp games in which they were asked to take a stance on a historical issue made them feel more open to considering others' perspectives.

As positive emotions positively correlate with motivation and academic success (Williams, Childers, and Kemp 2013, 220-222), students' affective engagement is likely to connect to cognitive engagement (Ke, Xie, and Xie 2016, 1196). The cross-loading of survey items on affective and cognitive engagement factors supports this connection. One student's statement captured attitudes expressed by many: "The game was more informal and fun. It was also easier to join in. In a regular discussion section, I often miss my chance to make a point or feel like my points aren't valid. I felt more comfortable playing this game, pretending to be someone else."

## 5.2 Cognitive Engagement

We defined cognitive engagement as the degree to which students are meaningfully involved in learning in a manner that contributes to course learning outcomes (Martin and Torres 2016, 2; Tang and Hew 2022, 5). Extant literature suggests that students' positive emotions are related to their meaningful involvement in learning (Bond et al. 2020, 3), and our finding of overlapping factor loadings related to affective and cognitive engagement supports this conclusion. This was further evidenced by students' reports of feeling meaningfully involved in learning during the games ($M = 7.88$) and expressing the belief that the game-based experiences contributed to course learning outcomes ($M = 7.77$). These results indicate that students not only enjoyed the games but were also highly cognitively engaged during these experiences, consistent with Carnes' observation that "by internalizing different selves and ideas,…students [ask] more questions about who they [are] and what they [believe] . . . They [do] not have to be told to think critically; the new occupants within [force] them to do so." (Carnes 2018, 122).

Cognitive engagement and associated academic success can be increased through instructional strategies, such as game-based learning, that actively involve students in the learning process (Schettig et al. 2023, 19-20; Wu, Van Veen, and Rau 2019, 734). Students cited the "hands-on" nature ($n = 107$) of the games and overwhelmingly noted feeling actively involved ($n = 242$) during the game sessions. Their conceptual understanding was enhanced through content knowledge, opportunities to apply concepts, and deeper contextual and cultural understandings, and they acquired or strengthened skills in the areas of executive function and decision-making, interpersonal communication and collaboration, critical thinking and reasoning, and social-emotional intelligence. The game structures varied but tended to require common academic behaviors, such as planning, organization, decision-making, and time management, and students reported that these skills were strengthened through role-play practice. These advantages were reported following multiple games, suggesting that students benefited not only from *what* they were learning, but *how.*

Of note were reactions related to interpersonal communication and collaboration. Most students highlighted peer interaction as an enjoyable feature, as it "allows other students to talk to each other about course materials in a fun way." Many also noted interactivity as a useful learning experience, observing that it helped them to gain "a greater comprehension of the concepts discussed in lecture," "get different perspectives," and "connect ideas and big picture concepts." Unexpectedly, some students framed peer interaction as a skill requiring practice. Some amount of apprehension about performative elements such as public speaking and debate was expected. However, several students felt unsure about how to interact with their classmates, even informally. For these students, the interactive games were vital to helping them practice "social skills," "talking to others," and "better communication skills," leading to reactions such as, "I'm more comfortable speaking with my classmates," following the game-based experiences.

## 5.3 Comparison to Lecture

In this application of game-based learning, edu-larp and an RPG in education were integrated as discrete sessions within courses that also included lecture and group discussion, enabling direct comparisons of game-

based learning versus lecture from the same student sample. These comparisons yielded mixed results. Students rated their cognitive engagement as significantly higher during games compared to lectures ($z = 2.40$, $p = .02$). However, they reported a small affective preference for lecture over game-based learning ($z = -1.80$, $p = .07$).

Multiple perspectives exist in the literature, with some studies suggesting that students prefer RPGs over lecture (Crow and Nelson 2015, 30-31) and others documenting student resistance to active methods such as gamification and collaboration, even when those strategies improve learning (Deslauriers et al. 2019, 19253-19254; Prunuske et al. 2016, 138). This resistance tends to be strongest in students who are accustomed to passive learning (Felder 2007, 184; Prunuske et al. 2016, 137), which may explain why these largely first- or second-year students, unlikely to have taken previous collegiate history courses in a lecture format, expressed minimal resistance.

Students' narrative responses identified beneficial game elements not present in lecture, including perspective-taking, ownership and self-awareness of learning, social learning, and active involvement. Students highlighted the immersive nature of the games, noting that "the game allows me to interact with history rather than hear about it" and "I enjoyed being able to experience the game from the point of view of the people of the time. You get to step out of the observation-only learning and...experience learning through your own emotions." This immersion aided students in finding personal or modern connections to historical events and considering others' perspectives, including both historical figures and their own peers, supporting the conclusion that role-immersion games reverse the psychological dynamic of the "silent classroom" (Carnes, 2018, 137) that frequently manifests in lecture-based courses. While the *Trial of Galileo*, *Babbage*, and *Darwin* edu-larp games used in this study were facilitated in the discussion sections by TAs, actual gameplay was student-led, promoting active participation by most students.

Though students expressed initial nervousness over interacting with and speaking in front of classmates, the social and active game elements were ultimately viewed by many as helpful. Some admitted that "in lecture I get distracted by other things or find myself not paying my full attention," but during the games, "I was more involved in learning because I was actually playing the game instead of just hearing about it." Responses ultimately reflected an appreciation for the game-based experiences that acknowledged them as challenging but beneficial, as one student summarized: "Having to put myself in the thought process of a person from that time helped me to contextualize everything I have learned about this piece of history."

## 6. CONCLUSION

This study contributes to the developing understanding of relationships between game-based learning and affective and cognitive student engagement in higher education, framing the findings according to types of educational value (Mohsen, Abdollahi, and Omar 2019, 518-520). In keeping with extant literature, affective responses indicated that students felt motivated during the games, yet expressed a slight preference for the passive learning of a lecture (Deslauriers et al. 2019, 19253-19254; Prunuske et al. 2016, 137-140). Students found the games highly cognitively engaging, both in strengthening conceptual understanding of course material and in providing opportunities for skill development of pro-learning behaviors, which may be connected to positive emotions (Pekrun 2016, 584-585; Williams, Childers, and Kemp 2013, 220-222). Students identified multiple experiential learning characteristics as integral, including personal connection, ownership, social learning, and active involvement. The games' emphases on perspective-taking and engagement served to further the aims of the College's themed semester mission (University of South Carolina, n.d.).

### 6.1 Limitations

This study's primary limitation is its use of a voluntary, self-reporting instrument. While small, grade-based incentives were offered to encourage students to submit the surveys, some students did not, introducing the potential for nonresponse bias. Because the response rate was nearly 60% with no identifiable systemic source of error, this is unlikely to have impacted the aggregated results (Nulty 2008, 307-310). A second limitation is the potential for social desirability bias, leading students to submit responses they believe align with the instructor's wishes. However, because the survey was fully anonymous to the course instructor, TAs, and authors, we consider this risk to be minimal.

### 6.2 Recommendations for Future Research

These results suggest that the use of edu-larp and RPGs in education in the context of a collegiate history course can positively impact student learning through affective and cognitive engagement, making this strategy worthy of continued investigation. Building on this work, we recommend future research that implements procedural suggestions from students to revise the game-based learning experiences and uses a refined survey instrument to better isolate the factors of affective and cognitive engagement. An additional area of exploration may include gathering data on the impact and cohesiveness of the debriefing sessions in addition to the game sessions (Lacanienta 2022, 75).

Game-based learning can engage students in applications of academic skills and behaviors such as decision-making and problem-solving (Castillo-Parra et al. 2022, 811-813). In the undergraduate history course where we applied this strategy, the use of role-playing games created high levels of affective and cognitive engagement, primarily due to their active, interactive, and immersive characteristics that emphasized taking the perspectives of others and becoming "a part of the history I was learning about." As a complement to passive methods, game-based learning can help to rewrite students' internal rules for what a history course can be: "I learn best through collaboration and this gave me the chance amongst my peers to incorporate that into a history class, which I didn't think I would get."

### ACKNOWLEDGEMENTS

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**Rachel Hoke** is the Associate Director of Technology & Pedagogy at the University of Pennsylvania and Instructional Design Associate at the University of South Carolina, having transitioned to focus on instructional technology in higher education after more than a decade of teaching music and special education in K-12 settings. Her research interests include teacher education, online learning, and learner experience design.

**James Risk** is a Senior Instructor in the Department of History at the University of South Carolina. He is a historian of science and technology who has been using board games and role-playing scenarios to enhance history curriculum in his classroom since 2011. He is particularly interested in how rule modifications can be used to introduce role-play into more traditional board games for educational purposes.

# How Do Dungeon Masters and Players Contribute to the Needs Satisfaction (or Frustration) in *Dungeons & Dragons* 5th Edition?

**Abstract:** Emerging research suggests tabletop role-playing games may support the basic psychological needs of players, contributing to well-being and flourishing. Yet, exactly how tabletop role-playing games promote needs satisfaction remains unclear and requires further research. This research focus is critical due to the rising interest in the therapeutic use of tabletop role-playing games. This study used an online qualitative survey ($N = 1120$) and reflexive thematic analysis to investigate this area in *Dungeons & Dragons* (*D&D*) 5th Edition. Five key themes were developed: Compelling versus Uncompelling Game Worlds, Character Engagement versus Disengagement, Supporting versus Restricting Player Agency, Fair versus Unfair Adjudication, and Social Cohesion versus Conflict. Themes are discussed in relation to the satisfaction (or frustration) of players' basic psychological needs. This study found that the Dungeon Master, and to a lesser degree, other players, can satisfy all three basic psychological needs (autonomy, competence, and relatedness) by creating an autonomy-supportive environment in their *D&D* games. These findings have important implications for training, game design, and implementation of *D&D* in both casual and therapeutic settings.

**Keywords:** tabletop role-playing games, Dungeons & Dragons, basic psychological needs, needs satisfaction, game master, self-determination, intrinsic motivation, autonomy-support, well being

**Patrick McLaren**
University of Melbourne, AU
*mclaren.psych@gmail.com*

**Lindsay Oades**
University of Melbourne, AU
*lindsay.oades@unimelb.edu.au*

**Ben Derry**
University of Melbourne, AU
*b.deery@unimelb.edu.au*

## 1. INTRODUCTION

Tabletop role-playing games, such as *Dungeons & Dragons* (*D&D*), are currently being used therapeutically to support social connection and social skill development in children in neurodivergent populations (autism, ADHD), as well as to address anxiety and depression (Abbott et al. 2022, 17; Burns 2022; Gebhart 2019; Jenkins 2021, Katō 2019, 25; Varrette et al. 2023, 151-153). Nevertheless, the study of tabletop role-playing games in relation to well-being and mental health remains in its early stages. While initial research suggests tabletop role-playing games may support the basic psychological needs of players, contributing to player well-being and flourishing, this relationship is not well understood (Adams 2013, 82; Lehto 2021, 81; McLaren, Oades, and Deery 2024a, 11-12; McLaren, Deery, and Oades 2024b, 8-10; Poeller et al. 2023, 5-6; Walsh and Linehan 2024, 46-47). If tabletop role-playing games are to be used for therapeutic outcomes, understanding how these game types influence the well-being and mental health of players is vital. This research can then guide training, intervention design, development, and implementation.

### 1.1 *Dungeons & Dragons* and the Role of the Dungeon Master

*Dungeons & Dragons* (*D&D*) is a game where players take on the role of fictional characters to engage in a collaborative storytelling experience. Players typically create characters based on game mechanics and decide on

their abilities, strengths, weaknesses, and backgrounds. Players interact with each other and the game world through their created characters, making decisions and acting based on their character's background and abilities. The outcome of player decisions or actions is typically determined using dice rolls, which are interpreted within the game's rule framework. In *D&D*, game sessions are usually played by five people (although group size may vary), consisting of four players and one game facilitator, referred to as the Dungeon Master (DM). Traditionally, the role of the DM differs from other players in the game. While other players create characters to participate in the game world and collaborate to develop the game narrative, the role of the DM is much broader and more influential. The *D&D* 5th Edition *Player's Handbook* describes the role of the DM as the game's "lead storyteller and referee" (Wizards of the Coast 2014, 5). Thus, the DM is responsible for many crucial aspects of play, including rule decisions and managing game disputes, generating major elements of the game world, including scenarios and events, and developing and controlling non-player characters (NPCs) the players meet during the game. While *D&D* is collaborative, and players can also influence the game narrative and story progression, they typically have less influence than the DM. Accordingly, how the DM runs the game, including how they manage choices and conflicts, should strongly influence player experiences and satisfaction, both positively *and* negatively.

### 1.2 Needs Satisfaction (and Frustration) in *Dungeons & Dragons*

According to Self-Determination Theory (SDT), human motivation, psychological growth, and well-being rely on satisfying three basic psychological needs: autonomy, competence, and relatedness (Ryan and Deci 2017, 242). Autonomy reflects our need to feel we have control over our lives and behaviors; competence reflects a need to develop mastery over important tasks; and relatedness reflects our need to belong and feel connected with others. When these needs are met, we are more likely to experience positive outcomes, such as enjoyment, personal growth and well-being. Conversely, if these needs are thwarted or frustrated, they can have negative consequences.

There is growing research evidence that digital games may influence the basic psychological needs of players, contributing to enjoyment and well-being (Johannes et al. 2021, 3-4, 9-11; Rieger et al. 2014, 282-285; Ryan and Deci 2017, 508-531; Ryan et al. 2006, 360-361). Similarly, initial research demonstrates the potential for *D&D* to meet the basic psychological needs of players, which were related to well-being (McLaren, Deery, and Oades 2024b, 8-9). However, research exploring tabletop role-playing games, more broadly, and basic psychological needs in detail is still scarce. While initial findings for tabletop role-playing games, like *D&D*, have reflected findings in digital gaming research, it remains unclear how exactly needs are satisfied during play and what influence the DM or other players have on these processes.

Needs satisfaction in tabletop role-playing games is of particular interest as previous research suggests psychological needs satisfaction, particularly social and relatedness needs, may act as one of the primary contributors to positive game experiences, including player well-being and mental health outcomes (Adams 2013, 82, McLaren, Oades, and Deery 2024a, 10-12; McLaren, Deery, and Oades 2024b, 8-9; Walsh and Linehan 2024, 46-47). These relationships are particularly relevant if tabletop role-playing games are to be used therapeutically and with specific clinical groups. Given the influence of the DM in games like *D&D*, understanding how they may influence player experiences and needs, both positively and negatively, can assist in intervention development.

In therapeutically-focused tabletop role-playing games, a "therapist" (psychologist, doctor, social worker, teacher, support worker) will likely take on the DM role and use the game and its mechanics to accomplish therapeutic outcomes for participants. While similar, the role of the DM will differ between casual play and therapeutic games. In casual games, the typical focus is entertainment/enjoyment. In comparison, therapeutic games will have additional objectives beyond fun and enjoyment, including well-being or men-

tal health outcomes, depending on the nature of the intervention. Thus, understanding how the DM can contribute to players' basic psychological needs and well-being can affect both causal and therapeutic games. Hence, this study asks: "How do the dungeon masters and other players influence the basic psychological need satisfaction of players in *Dungeons & Dragons*?"

## 2. METHOD

### 2.1 Design

This study was approved and conducted in compliance with a University Human Ethics Committee (Approval No. 1853349). As *D&D* is currently in its 5th Edition (Wizards of the Coast 2014) and is typically considered the prototypical tabletop role-playing game, it was selected as the target game for this study. The study utilized survey methods and generated qualitative data from a large participant group of *D&D* players to explore *how* DMs and other players influence need satisfaction and/or frustration during their casual *D&D* games. Data was analyzed using reflexive thematic analysis (Braun and Clarke 2006, 86-93; 2019, 592-593; 2021, 333-343). Participants were recruited via online advertisement through *D&D* 5th Edition-related Facebook and Reddit groups. Following a link to a Qualtrics survey, participants were presented with the study's Plain Language Statement and Consent form before completing the anonymous study survey. For this study, basic demographic data was collected. Participants were then prompted to discuss both positive and negative experiences using two open-ended questions: "What, if anything, have DMs or other players done that impacted positively on your experience of the game?" and "What, if anything, have DMs or other players done that impacted negatively on your experience of the game?". Questions did not specify basic psychological needs (autonomy, competence, relatedness) to avoid leading participants; instead, items allowed participants to respond freely with any experiences. To explore basic psychological needs, themes that developed during analysis were discussed in relation to basic psychological needs satisfaction and frustration using Self-Determination Theory.

The participant group (shown in Table 1) was mostly adult males from the Americas and Europe who were university-educated and generally employed. Overall, participants had 2.84 years of experience playing *D&D* 5th Edition and 7.45 years of experience playing tabletop role-playing games in general. In comparison to recent demographic data for the *D&D* 5th Edition community (Corliss 2021), this participant group has fewer females (17.0% versus 40%), more participants who identified as non-binary (3.4% versus <1%), a higher ratio of participants in the 25 to 29 years group, with a lower ratio of younger and older age groups:

### 2.2. Analysis

Participant data were analyzed in NVivo using reflexive thematic analysis to identify and interpret meaningful patterns in participant responses. Specifically, the study utilized the 6-step approach described by Braun and Clarke (2006, 87; 2019, 333-344) with a phenomenological lens that focuses on subjective meaning-making. Within reflexive thematic analysis, the role of the researcher is seen as central to the analysis. Researchers are encouraged to embrace reflexivity, subjectivity, and creativity as assets in knowledge production, with analysis reflecting an intersection between the data set, theoretical assumptions, and the analytical skills of the researcher (Braun and Clarke 2019, 594). As a result, within reflexive thematic analysis, it would be expected that themes interpreted by one researcher may not be reproduced by another; thus, this approach discourages attempts to seek consensus amongst multiple coders or attempts at accurate or reliable coding, such as inter-rater reliability, triangulation, and member checking (Braun and Clarke 2019, 594; Byrne 2022, 1393).

Given the interpretive nature of reflexive thematic analysis, before discussing the analysis, a statement of the coders (author one) positionalities and reflexivity practice are warranted to aid qualitative validity, transparency, and trustworthiness. He is a White (Australian), heterosexual, neurotypical male, humanistic psychologist and pragmatic researcher who enjoys games (digital, board, card, and tabletop role-playing games). He is interested in the potential application of tabletop role-playing games for therapeutic purposes, but currently feels more research, theory, and development are required before the widespread adoption of tabletop role-playing game-based interventions, particularly for mental health. The coder identifies as an insider in the *D&D* and tabletop role-playing games community with extensive experience with *D&D* 5th Edition (and tabletop role-playing games more broadly), both as a player and DM, including knowledge of the game, its rules, terminology, mechanics, and game-related jargon. While his position as an insider granted him insights and allowed him to navigate and engage deeply with the data, he also acknowledged how his own experiences may influence the interpretations of participant narratives and thematic construction. To mitigate this, he engaged in continuous reflexivity through frequent peer debriefing with authors two and three. In contrast, authors two and three were considered outsiders, with limited or no experience with *D&D* or tabletop role-playing games more broadly; however, they had extensive theoretical and methodological knowledge. By continually questioning his assumptions, analytic processes, and theme development through critical discussions with authors two and three, author one remained transparent and accountable in the analytical process.

The first step in reflexive thematic analysis is familiarization, where the data is initially explored. Overall, the data set was rich with an average word count of 49 words per participant (*SD* = 96, range 2 to 2688 words), representing a few short words to small essays. During step one, positive (26806 words) and negative (28373 words) responses were reviewed separately and were relatively equal in terms of word count. Due to the quantity of data (over 50,000 words), this process was slow, as responses were read several times to ensure deep engagement and the exploration of subjective meaning and experiences, and was conducted over several weeks. During this time, the coder discussed and reflected on the process with authors two and three to aid reflexivity and minimize preconceptions. During this step, it was recognized that some participants did not specify which groups, DM or player, their comment was referencing, which was noted for the initial coding step. It was also noted during this stage that most participant responses focused on the role of the DM as opposed to other players; this was noted for further steps.

Following familiarization, initial coding (step 2) was conducted with data systematically open-coded using an inductive approach focused on latent codes and player experiences and emotions (Byrne 2022, 1396-1398; Braun and Clarke 2021, 331). In this step, when an unspecified comment was encountered, they were assigned to a group, if possible. The target group was often apparent to the coder based on context and their familiarity with the game's language and mechanics. For example, a comment such as "they said "no" to actions that were outlined as viable within the rules" is most likely associated with the DM, as players do not typically make rulings such as this. Where it was impossible to assign a target group, responses were coded as general. During the coding process, patterns emerged in the data and were developed using rough thematic maps.

During step 3, the search for theme codes was reviewed, collated, and developed into potential theme ideas. Peer briefing (with authors two and three) was used extensively during this stage to reflect on the meaning, context, and relationship between themes as they were being developed. During step 4, reviewing themes, themes were developed based on the initial codes and thematic maps, which were particularly helpful in exploring relationships between themes. Reviewing both positive and negative data sets, it became apparent that both groups fell into distinct dichotomies, so positive and negative themes were collapsed into the same theme as they reflected the same content but reversed. Further, as most content focused on the role of the DM themes were divided into two groups: DM characteristics and player characteristics.

**Table 1:** Characteristics of Participants

| Characteristics | Participant Group (*n* = 1120) | |
|---|---|---|
| *Age, in years* | | |
| Mean | 27.78 | *(SD = 7.08)* |
| Range | 18 to 78 | |
| *Gender, n (%)* | | |
| Male | 892 | *(79.6%)* |
| Female | 190 | *(17.0%)* |
| Non-Binary | 38 | *(3.4%)* |
| *Georegion, n (%)* | | |
| Americas | 623 | *(55.6%)* |
| Europe | 265 | *(23.7%)* |
| Oceania | 206 | *(18.4%)* |
| Asia | 19 | *(1.7%)* |
| Africa | 7 | *(0.6%)* |
| *Education, n (%)* | | |
| Secondary or less | 274 | *(24.5%)* |
| Pre-University or Vocational | 233 | *(20.8%)* |
| Bachelor | 436 | *(38.9%)* |
| Master | 139 | *(12.4%)* |
| PhD | 31 | *(2.8%)* |
| Other | 7 | *(0.6%)* |
| *Employment, n (%)* | | |
| Employed | 731 | *(65.3%)* |
| Student | 245 | *(21.9%)* |
| Unemployed | 109 | *(9.7%)* |
| Other | 35 | *(3.1%)* |
| *D&D 5th Edition Experience, in years* | | |
| Mean *(SD)* | 2.82 | *(SD = 2.82)* |
| Range | 0.50 to 8.00 | |
| *Tabletop Role-playing Game Experience, in years* | | |
| Mean *(SD)* | 7.30 | *(SD = 8.27)* |
| Range | 0.50 to 44.00 | |

After grouping themes, they were defined (step 5) and named to reflect their meaning, content, and the dichotomy that emerged during theme development. During this stage, quotes that exemplified the theme content and meaning were also highlighted for reporting. Finally, the report was produced (step 6), and themes were mapped to visualize the findings and their relationships. Due to participant focus on DM characteristics, this group is the primary focus of the findings. Further, when reporting quotes, one participant (ID815) provided extensive responses, in total 2688 words, that very articulately and thoughtfully communicated many of the main concepts discussed by other participants and exemplified theme meaning. As this participant was representative of the participant group regarding age and gender, their quotes are featured several times.

## 3. FINDINGS AND INTEGRATION

Through the reflexive thematic analysis, five themes were developed, as the majority of participant data focused on the role of the DM; four themes were developed that focused on DM characteristics, and one theme was developed that focused on all players in the game, including the DM. The following section discusses each theme and its association with the satisfaction and/or frustration of basic psychological needs, using Self-Determination Theory as a guide.

### 3.1 Dungeon Master (DM) Characteristics

In *D&D* 5th Edition, the DM is typically the main storyteller and referee. They generally have more control over the narrative and direction of the game. They plan and guide encounters, create locations, develop characters for players to interact with, and determine how the game world responds to the player characters' actions. Due to this level of influence, it was not surprising that most of the experiences discussed by participants focused on the impacts of DM. Overall, the following themes were developed: (1) Compelling versus Uncompelling Game Worlds, (2) Character Engagement versus Disengagement, (3) Supporting versus Restricting Player Agency, and (4) Fair versus Unfair Adjudication. A thematic map of DM characteristics can be found in Figure 1:

*3.1.1 Theme 1: Compelling versus Uncompelling Game Worlds*

This theme focuses on the DM creating interesting and engaging worlds with compelling stories and characters for the players to interact with. The game world and events are the focus of *D&D* play, not unlike the plot of a movie or novel. Without an interesting world or story, *D&D* can be dull or unenjoyable. Participants frequently reported how their DM crafted the game world. How individual DMs accomplished this varied considerably, which was best expressed by the following quote:

> Each [DM] brings their own unique emphasis and flair to the games. Some make me appreciate the tiny wins by keeping the power and treasure balance low; others have woven intricate stories that rivalled Game of Thrones-level plot development. Some have helped to learn combat tactics with miniatures, others have added greatly to persona and character development. – *ID78, m, 48.*

**Figure 1:** Thematic Map of Game Master Characteristics
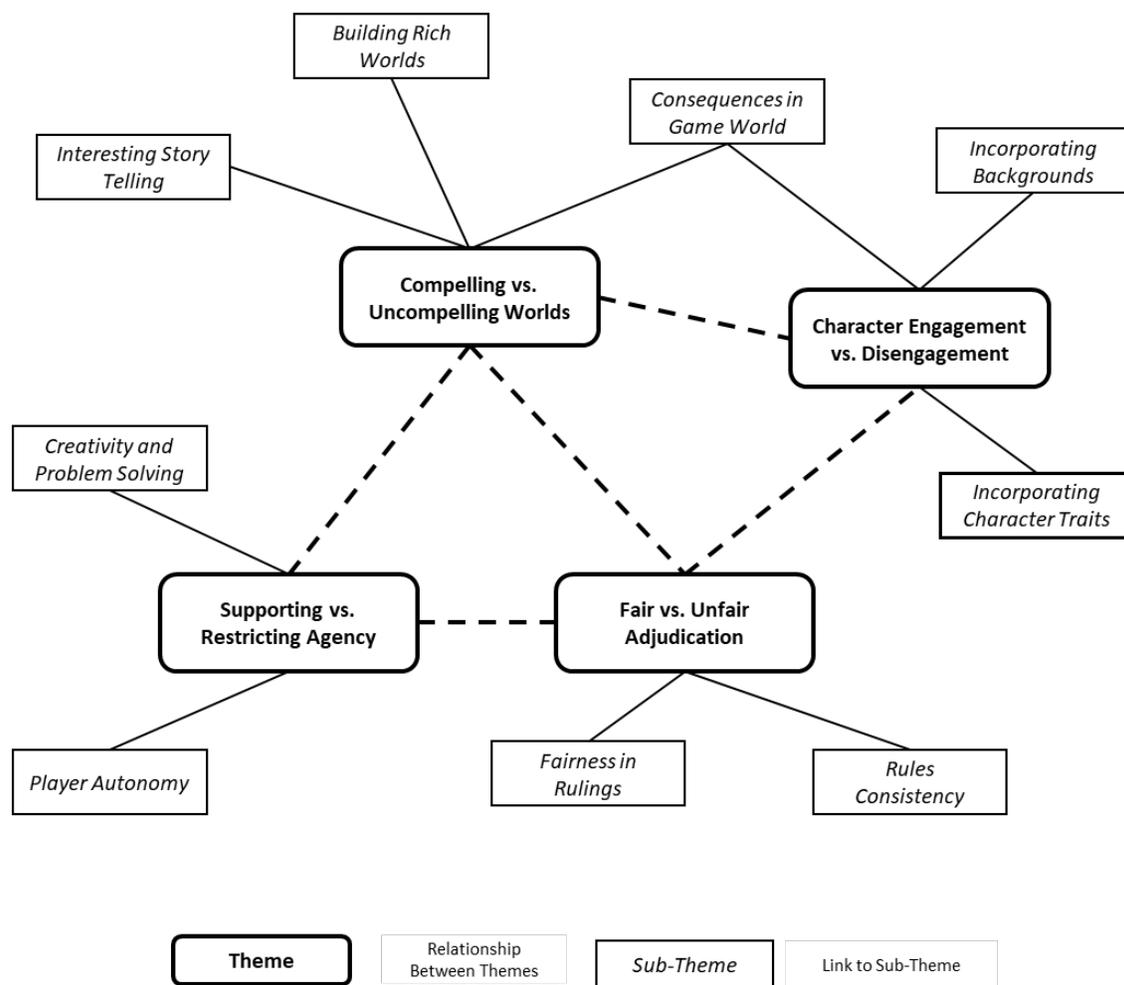


Participants also reported a range of storytelling aids used by their DMs, such as using voices, props, and music to help bring characters and scenes alive and increase immersion. Much like other forms of entertainment, such as books, movies, and TV series, the worlds created during play and the stories told within them can capture the imagination and engage players (or not). As such, there was a strong focus on the importance of interesting stories and characters, as one participant wrote:

> His characters are realistic. They have goals, flaws, fears, ideals, and motivations. We can interact with them in various ways and see realistic outcomes of such interactions. These characters invoke emotions from us by their words and actions, and as such, we can develop attachments to them, as with real people. – *ID815, m, 25.*

Thus, the core of a compelling world seems to be that DMs provide players with enough interesting content to act upon or interact with. Dungeon masters accomplished this in several ways: creating interesting stories, scenarios, and characters; developing the player characters' story (links to Theme 2); and developing consequences for player characters' actions or inactions. But it can be difficult for DMs to achieve as preferences can vary considerably amongst players, even within the same group. Nevertheless, one element that did emerge was the amount of content DMs provide their players. One concern discussed by participants was a lack of

content, which prevented players from deciding on and taking action in the game world. Participants offered several reasons, but one of the most common was a lack of DM preparation, as one participant stated, "… the DM never prepped, which resulted in very little in the way of interesting characters or places, little story, poorly designed combat encounters." – *ID124, m, 24*.

However, uncompelling worlds and experiences were not only attributed to a lack of content, with participants also discussing instances of too much unhelpful content. When DMs focus on the wrong thing or do not provide content that players can take action on, players may disengage from play. As one participant said:

> Our [DM] forced lengthy, needless exposition on us, describing in painstaking detail every environment he made up, every non-player character's appearance, even in cases where these descriptions clearly didn't matter or provide any information to be role-played upon. It felt like the [DM] had created a world in their writing they enjoyed, by virtue of being the author, but did not put any effort into making it engaging for us. Such descriptions felt boring, and I quickly found myself disengaging, being distracted by doodling, playing with dice or any other activity. *- ID815, m, 25.*

Crafting a compelling world for players appears to be a delicate balance. Dungeon Masters should provide enough material for players to explore without too much unnecessary information that detracts from play and the developing story.

Taking the concept of story development further, participants also spoke about the importance of consequences or the impacts player characters had on the world and the story. Participants enjoyed scenarios where character decisions or actions impact the broader narrative meaningfully. Unlike movies or books, where the watcher or reader cannot influence the direction or outcome of the story, within *D&D*, a DM can provide players the opportunity to impact the game world and story, generating a sense of accomplishment. As one participant said:

> I enjoy when a world feels impacted by our decisions, rather than being static or unchanging. The real world can feel like outside of my immediate circle of influence that my choices/impact is meaningless, *D&D* can give a very real sense of accomplishment, like my choices, and myself by extension, matter and are meaningful. *- ID1363, m, 33.*

In *D&D*, a compelling world helps immerse players in rich storytelling and provides opportunities for meaningful choices that shape the story's narrative, which fosters a sense of agency and accomplishment. However, balance appears to be the key for DMs. Too little content leaves players directionless, while too much of the wrong detail may cause disengagement. The most engaging worlds appear to provide actionable content that responds to player decisions, rewarding player experiences.

### 3.1.1.1 Theme 1: Integration

By creating compelling worlds for players to engage with, DMs have the potential to meet all three basic psychological needs. It has been argued that tabletop role-playing games, like *D&D*, create a rich, complex social environment that includes several layers of relationships, including player-to-player, player-to-character, and character-to-character, which all have the potential to meet relatedness needs (McLaren, Oades, and Deery 2024a, 10, 12). When DMs create realistic, relatable, and interesting characters, players can engage in character-to-character relationships, which has also been found to meet relatedness needs in digital games (Rigby

and Ryan 2011, 67). The same appears true in *D&D*, where participants reported strong attachments to other characters and non-player characters in the game. Thus, by creating interesting characters in the game world, the DM creates opportunities to satisfy player relatedness needs. One strength of tabletop role-playing games, like *D&D*, over digital games is specificity. Whereas characters in digital games are pre-set, a DM can easily change characters in real time to better meet the needs of players. However, these experiences are not limited to relatedness. The responsive nature of a DM means they can more easily shape most experiences to meet other needs of their players.

Many modern digital games have grown in complexity, with open-world style games providing players with a broad range of activities such as places to explore, non-player characters to meet and quests to complete. The freedom of choice afforded by open-world games offers substantial opportunities to meet player autonomy needs (Rigby and Ryan 2011, 45-46; Uysal and Yildirim 2016, 8). The same is apparent in *D&D*, as detailed in Theme 1. When a DM creates a more compelling world, it provides more opportunities for players to interact in meaningful ways. The choice of actions and the consequences of those actions all support the satisfaction of autonomy needs. While digital games can provide a lot of content to occupy players, everything in digital games has predetermined coded outcomes, which can limit choice and experiences. Whereas a DM in *D&D* can make real-time changes to scenarios, characters and the game world to accommodate player choices and, thus player autonomy needs.

The importance of compelling worlds discussed in this theme, specifically the role of consequences, also has the potential to meet the competence needs of players. Ryan and Deci (2017, 513-515) discuss a range of mechanisms built into digital games that provide players with positive feedback, such as points, rewards, status boosts, achievements, and badges—these indicators signify success, each capable of satisfying competence needs. Thus, when players accomplish tasks, they can develop a sense of mastery and achievement when this feedback is given. Feedback may underline the importance of consequences in tabletop role-playing games, like *D&D*. By allowing players' actions to shape the game world, the DM provides rich, player-specific, and action-specific feedback. While a digital game may give a reward for completing a pre-defined task, a DM can be more reactive to what the players find meaningful and provide specific reinforcement for those actions or outcomes. The DM can make these decisions in real-time based on the events and decisions made by a unique set of players during play. Thus, DMs have the opportunity to craft specific positive feedback to meet the competence needs of individual players.

In summary, by crafting compelling, dynamic worlds and realistic characters, DMs can support all three basic psychological needs of players. Realistic and relatable characters allow players to engage in meaningful interactions, fostering relatedness through character-to-character relationships. Autonomy needs can be supported by offering freedom of choice, with character decisions and consequences shaping the narrative and game world. Competence needs can be met when DM provides feedback based on unique player decisions and actions, offering personalized feedback or rewards that acknowledge player achievements, reinforcing a sense of mastery.

*3.1.2 Theme 2: Character Engagement versus Disengagement*

Character engagement was a theme linked to the Compelling versus Uncompelling Game World's theme. This theme focused on the DM actively drawing the players into the game by incorporating player characters into the game world in meaningful ways. Dungeon masters typically accomplished this by drawing on the player characters' backgrounds and integrating them into the world and story. As one participant said, "The DM who I play with the most, asks in-depth questions about all the characters' backstories to intertwine important non-player characters and events with our characters, so our characters are always relevant to the events of the story." – *ID 1153, f, 18.*

With active character engagement, participants reported feeling more connected to the game world and felt their character was important and that their actions mattered. The opposite was also true. When the DM failed to incorporate player characters into the game, made the player character's background irrelevant, or forgot about the character's background, participants reported a strong sense of dissatisfaction. As one participant said:

I collaborated with the [DM] to figure out my character's backstory, contacts, and motivation. My character, belonging to an unorthodox race, wore a mask and an almost fully concealing heavy cloak, both out of identity crisis, and to avoid persecution. Over several real-life months, my character's race never once mattered, and after discussing my frustration with the DM in private, they admitted to having forgotten my character's race... being literally forgotten frustrated me to the point I left the group. - *ID815, m, 25.*

There are many types of characters in literature, film, and TV, such as protagonists, antagonists, confidants, and tertiary characters. When DMs draw player characters into the game and use their backgrounds or focus the story around the player character, they become the protagonists. However, when DMs fail to incorporate the player characters in the game world, many participants experience play as irrelevant or feel their characters are tertiary rather than the protagonists.

Like the compelling versus uncompelling game worlds theme, the importance of consequence was also discussed; however, here, the act of drawing player characters into the world made actions and consequences in the game more compelling:

Our current DM has implanted character backstories into his narrative, and we can interact with NPCs and each other as much or as little we desire. Good role-playing and ideas are encouraged and rewarded. Our characters feel a part of his world and as a player I am more invested in my character, their actions, and consequences. - *ID14, m, 29.*

Another method discussed was DMs, who actively created scenarios or story elements, allowing participants to explore important details of their characters. Essentially, this provided opportunities for participants to engage with and explore their characters:

He helps us tell our stories by providing us with scenes that underline key traits our characters have. For example, if I wanted to tell a story of playing a dragonborn woman who found herself infertile I could count on the DM to provide me with a scene that would let me act out my character's feelings upon dealing with children or seeing other dragonborn children play with their parents.... - *ID815, m, 25.*

This theme focuses on how DMs integrate player characters into the story and game world in meaningful ways. The DM can engage players by crafting opportunities for them to explore and express their characters in the game world. It appears the Character Engagement versus Disengagement theme extends and enhances the effect of the Compelling versus Uncompelling Game World's theme. After creating an interesting world, the DM can draw the players into it by forging links between their player character backgrounds and the game world. These strategies place the player characters into the world with existing relationships that provide the players with meaning, motivation, and direction.

**3.1.2.1 Theme 2: Integration**

The impact of compelling characters on relatedness needs was discussed previously; however, it appears that drawing on player character backgrounds, DMs can further enable these character-to-character relationships as the player now has meaningful reasons to relate to various non-player characters in the game world. However, the impact of character engagement may also extend to the player-to-character relationship, which has been explored in tabletop role-playing games (Bowman and Shrier 2018, 395-407). It is assumed that when a player selects a specific trait for their character, they do so because it is meaningful to them. When a DM engages one or more of the traits assigned by a player, they enable the player to experience this trait vicariously through their character, which may be meaningful to the player. Within this theme, one participant discussed faith that his DM would draw on their character's background to create scenarios that would allow him to explore his character's experiences, which the participant found meaningful. This interaction between the player and their character may allow relatedness needs to be met vicariously through the player-character relationship, allowing them to explore and experience elements of the self.

Similar to the Compelling versus Uncompelling Game Worlds theme, the importance of consequences emerged in this theme. Here, the degree to which the DM engaged a player character influenced the level of investment in those characters, as well as their actions and consequences. Again, engaging characters appear to enhance the effects of the world, which may further influence the satisfaction of autonomy needs by generating more meaningful decisions and competence needs by creating more personalized, thus more meaningful, outcomes for those actions and choices.

While tied closely to compelling worlds, the way DMs integrate player characters into them can further magnify the potential to meet all three basic psychological needs, with players being more engaged and caring more about the game world, their choices, and the consequences of their character actions.

*3.1.3 Theme 3: Supporting versus Restricting Player Agency*

This theme focused on DMs actively supporting and encouraging player agency—the player's ability to impact the story through gameplay. Agency has been a key aspect of video game design and can be understood as "the satisfying power to take meaningful action and see the results of our decisions and choices" (Murray 1997, 126). After creating a world and embedding the player characters, the DM allows players to follow whatever path they choose and overcome obstacles in whatever way they wish, within the game's overall framework. While DMs can guide players, ultimately, the players decide where their characters go and what they do. This degree of freedom sets tabletop role-playing games, like *D&D*, apart from other games, like digital or board games. There are no predetermined outcomes or limited options. Players can use their creativity and problem-solving to guide their actions. As stated by one participant, "I like when the DM gives us the freedom to choose a course of action, I enjoy being presented with a problem or situation without being railroaded into a solution." – *ID659, f, 24*. This freedom further highlights the importance of the Character Engagement versus Disengagement theme discussed previously. For many players, their choice of actions in the game world is typically based on their character's traits and background. *What would my character do?* is a question many tabletop role-playing game players pose in their decision-making. Thus, many participants highlighted freedom in character creation and development as important. As one participant said:

> They've given me a lot of freedom in creating my character and giving my character the opportunity to do what they want. I have never felt restricted by a [DM], if there's something I wanted to do they've worked with me to help make it happen. – *ID1186, m, 25.*

In short, this theme focuses on the DM encouraging freedom in character creation and choice of actions in the game world. Unsurprisingly, the opposite, restricting agency, emerged as a negative characteristic of DMs, discussed mainly in the context of *railroading*, a term in the tabletop role-playing game community that refers to a lack of agency. Railroading occurs when a DM restricts or controls the actions of the player characters, does not allow them to deviate from a set pathway, and does not allow player character actions to impact the game world. Essentially, the player characters are passively riding a train that follows predetermined tracks or stories the DM creates. The following comment illustrates this:

> [The DM] railroaded the players into prepared scenes. Such scenes usually did not allow the players to interact with them, and none of the actions the players did matter there. This made us feel powerless, like our actions didn't matter and weren't valuable...One example was when the DM had a scene where a vampire delivered his "villain monologue" and forced us to watch his wedding to a damsel-in-distress we'd been protecting for the entirety of the campaign. For us to not "ruin" the wedding, the DM thought up an impenetrable invisible wall of force that the villain had created that conveniently circumvented and disabled our abilities that were meant to work around such walls, so we couldn't approach him. This felt frustrating for many reasons. - *ID815, m, 25*

This theme focuses on DMs supporting player agency and allowing players to make meaningful decisions and shape the story. Players value the freedom to choose their paths and solve problems creatively. Character creation and development also contribute to this sense of freedom. In contrast, restricting agency, often through railroading, was seen negatively, with participants reporting feeling powerless and disengaged. Indeed, many participants felt railroading defeated the purpose of playing *D&D* entirely. Freedom and creativity were defining characteristics of *D&D* that separated it from other media, such as books and video games, a finding shared by previous research (McLaren, Oades, and Deery 2024a, 7).

### 3.1.3.1 Theme 3: Integration

Previous research has highlighted the potential for tabletop role-playing games, like *D&D*, to meet the autonomy needs of players (McLaren, Deery, and Oades 2024b, 8). Autonomy needs were the core feature of the Supporting versus Restricting Player Agency theme. This theme focused on DM behavior that either satisfied or thwarted the autonomy needs of players. Essentially, when the DM creates a world and story but allows the player to decide where to go and what to do, they support the autonomy of players, thus allowing them the freedom to solve problems and overcome game obstacles in their own way. Interestingly, it seems autonomy needs were most relevant to railroading, which appears to be the embodiment of a DM thwarting autonomy needs. Indeed, even in digital games, players can be frustrated when agency is impaired (Johnson 2015, 605-608), with players finding character behavior in digital games limited or improbable, making their play experiences less meaningful (Zhao et al. 2021, 464). When DMs create a world and story but give players the freedom to act on their own goals, it has great potential to meet autonomy needs.

### 3.1.4 Theme 4: Fair versus Unfair Adjudication

The last theme specific to DMs was fairness in game adjudication. Traditionally, one of the DM's primary roles is to act as the game referee and arbitrator of rules. This theme covers how DMs adjudicate rules and their impact on the player experience. Overall, participants discussed the importance of rules and following the rules so all the players could participate on equal footing. When DMs do not follow the agreed-upon rules

or frequently change them, players may experience the game as erratic and unenjoyable as they lack a frame of reference to relate to the game world. The following quote highlights many of the issues of unfair DM adjudication:

> [The DM] misinterpreted the rules for their benefit, refusing to reason with players or references to rulebooks, Sage Advice[1] or Jeremy Crawford's[2] Twitter, broke the rules for their benefit, grossly disregarding the ruleset of the game and arbitrarily nerfing[3] the player's racial and class features because it was convenient. If they were pressured into a corner with evidence, they would declare the discrepancy to be a house rule, which was not discussed or approved by the players.[4] Players who felt robbed of their character's features and protested were ignored. - *ID815, m, 25.*

While rules were necessary, participants often varied in what they felt was fair adjudication. Some participants preferred stricter adherence to the rules, while others preferred flexibility. As an example, the topic of "fudging rolls" was commonly discussed. When characters act in *D&D*, there is often a randomization process, like a dice roll, to determine the outcome. Fudging rolls occurs when the DM arbitrarily changes the result of the dice roll. Some participants preferred it when the DM fudged dice rolls. One participant said, "I like when DMs are willing to fudge the rolls occasionally in favor of a more enjoyable experience." *ID468, m, 26.* While some DMs may fudge the dice rolls in favor of the players to prevent a character's death, improve the game narrative, or adjust the difficulty, problems occur when the opposite is true. Some participants discussed DMs who change the outcome of dice rolls against the players, forcing characters to fail when the rules indicate they succeed. This process is linked to Supporting versus Restricting Player Agency themes, where participants felt they lost their character's agency. These experiences lead some participants to prefer DMs who honor the dice roll regardless of the outcome. This contrast is present in the *D&D* community and is often a point of contention and conflict (see Flutes 2022; Pilon 2022). Nevertheless, most "ruling" issues can be managed by setting play expectations before the game begins, often called session zero.[5] A concept discussed explicitly by participants:

> I have enjoyed games where the DM is clear about their style of play, sets player expectations for the game, including system, tone, story, and world, and when they consciously attempt to maximize player engagement by considering their players' needs, clearly communicating their expectations, and compromising as needed. – *ID886, m, 29.*

Overall, the game rules are a shared framework that allows players to engage with their character and the game world consistently. If rules become inconsistent or uncertain, this can compromise a player's ability to engage with the game world meaningfully. While preferences differ, many players and DMs have developed strategies to manage expectations, such as conducting a session zero, highlighting that collaboration between players in *D&D* can start before the game begins.

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[1] An online resource where the game designers answer questions or clarify rules.
[2] Jeremy Crawford is a game designer and lead rules designer for Wizards of the Coast, the creators of *D&D* 5th Edition. He is considered by many to be the final word on rules' interpretations.
[3] Reducing the power of a character or skill causing it to be weaker or less effective
[4] Players often agree on sets of rules or changes to the rules before the game begins so everyone knows in advance.
[5] Session zero is a tabletop role-playing game concept were players gather not to play the game but to discuss the type of game they want to play, set expectations about content, set boundaries, select rules such as source books and character creations restrictions. This is done to ensure all players are on the same page when the game starts and typically improves the overall gaming experience for all players.

### 3.1.4.1 Theme 4: Integration

Previous research has highlighted the role of competence needs in enjoyment and well-being in digital game-play (Przybylski et al. 2009, 244; Ryan et al. 2006, 359-362; Tamborini et al. 2010, 768-769). Emerging research has demonstrated similar relationships between tabletop role-playing games, like *D&D*, and the satisfaction of competence needs (McLaren, Oades, and Deery 2024a, 11; McLaren, Deery, and Oades 2024b, 8). These competence needs are reflected in the Fair versus Unfair Adjudication theme. Having and following a common set of rules allows players to achieve mastery, first by understanding the rules and then using the rules to navigate the game in meaningful ways. This process may explain why players object so strongly to arbitrary changes in the rules, as changes diminish their capacity to learn and develop mastery. If a player cannot master the rules, then it becomes more challenging to navigate the game world successfully or in a way they find meaningful, potentially thwarting autonomy and relatedness needs. Further, when players feel that a DM acts unfairly, then player competence needs can also be thwarted. However, when DMs act fairly, they create a space that allows competence needs to be satisfied, which can improve engagement and player experiences.

Competence needs may also be at the core of the conflict over fudging dice rolls. Rigby and Ryan (2011, 19-20) argue that games can satisfy competence needs by maintaining a skill-challenge balance, which allows players to be optimally challenged. Competence needs can be thwarted when challenges are too easy or too hard. When scenarios are too easy, players may feel bored, lose interest, or become frustrated. Conversely, games that are too difficult may make players feel helpless or like giving up. Some *D&D* players may experience fudging dice rolls as unfairly adjusting the game's difficulty level. Fudging rolls in favor of the players may make the game too easy or diminish threats, making consequences less meaningful. Thus, for some players, the sense of overcoming game challenges may be reduced if they believe the DM adjusts the difficulty to allow them to succeed. Conversely, if the DM fudges rolls against the players, the game may become too difficult, making players feel their efforts are meaningless. However, suppose a DM fudges dice rolls to better maintain the skill-challenge balance, to increase the difficulty of a scenario that is proving too easy, or to adjust encounters that are proving too difficult. In that case, they may be better positioned to meet the player's competence needs. Indeed, research has suggested that balancing difficulty is associated with high levels of competence and enjoyment in digital games (Schmierbach et al. 2014, 109). Dynamic difficulty adjustment has been explored in digital games, with players reporting higher levels of needs satisfaction across all three basic psychological needs if they were unaware the difficulty had been adjusted to meet their skill level (Baldwin et al. 2014, 1493). However, if players were aware the difficulty level had been altered, they experienced an increase in competence needs but a reduction in autonomy and relatedness. This pattern may also be true for *D&D* players.

Overall, it appears the DM can satisfy competence needs by creating scenarios with a balanced difficulty. While the topic of difficulty-balancing, particularly in the form of fudging dice rolls, is controversial, if a DM utilizes this strategy, it should be done with the needs of the players in mind, first and foremost.

### 3.2 Player Characteristics

While most themes developed in this study related more specifically to DM characteristics, one theme was associated with all players in the game and related to (5) Social Cohesion versus Conflict, depicted in Figure 2.

**Figure 2:** Thematic Map of Player Characteristics
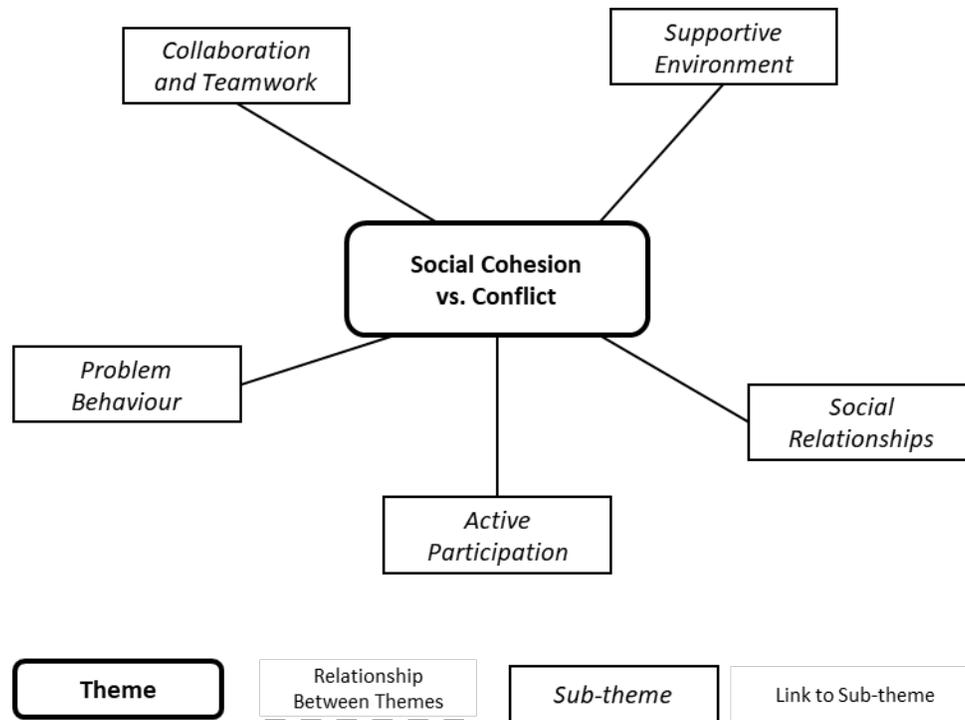


*3.2.1 Theme 5: Social Cohesion versus Conflict*

As tabletop role-playing games, like *D&D*, are inherently social games, it was not surprising that the social environment played a significant role in participants' experiences of *D&D* play. *Dungeons & Dragons* is considered a collaborative and cooperative experience, with the DM and players working together to create an enjoyable experience for everyone. Participants discussed creating a safe, supportive environment, collaboration, active participation, teamwork, and social relationships.

Participants discussed the importance of inclusive, supportive, respectful and encouraging spaces as they generated a safe space for players to enjoy the game. As one participant said:

> In the group, there is a heavy focus on the well-being and fun of the group. We encourage all individuals to have as much fun as they can, as long as it doesn't impact negatively on the fun of another player or the group. – *ID958, m, 23.*

This supportive environment creates a space where players can open up and express themselves and, by extension, their characters. This safe place also facilitated better collaboration as players were more willing to get involved and participate. Indeed, participants also discussed the importance of collaboration and teamwork. Collaboration was focused on players and characters actively working together as a team towards goals and objectives, as well as storytelling and character development. Essentially, when players work together to make the game satisfying for everyone playing. As one participant wrote:

> I think when everyone is along for the ride and gives themselves over to participating in whatever is going to happen, be it silly or serious. When people are collaborating together with you and your character to see where the story takes you, it creates some great storytelling. Some of the most fun I've ever had was just being my character in this imaginary world playing out their char-

acter development in completely unexpected ways because I had other players and a DM who I trust and who trust me - we were all on the same page willing to give ourselves over to where the story and characters would take us. – *ID437, f, 28.*

Unsurprisingly, the opposite also emerged, with participants reporting behavior that led to conflict and a breakdown of social cohesion in their play groups. These behaviors included player disengagement or lack of cooperation, combativeness, and problematic social or behavioral problems. Many participants felt that when players sat down to play *D&D* together, they made an unspoken agreement to participate. When players are disengaged, disinterested, or distracted, it can be disruptive for players who want to engage. While participants expressed frustration, annoyance, and anger at disengaged or combative players, they reported other more damaging behaviors. This inappropriate behavior covered a broader range of issues; however, it typically focused on factors such as sexism, bigotry, homophobia, unwanted sexual content, as well as anti-social or abusive behavior. As one participant wrote, "being unnecessarily cruel to fellow players, both in and out of character, will always ruin a game. This could be extremes such as sexism/homophobia/racism, or even things as simple as unwanted player versus player." – *ID470, f, 22.*

It should be noted that *D&D* does not typically encourage these negative social behaviors; however, some players may use the freedom of tabletop role-playing games to explore dark fantasy at the expense of other players. Some participants felt the social nature of tabletop role-playing games may also draw out or highlight some players' problematic social or behavioral problems. These issues directly oppose the social cohesion that participants reported as positive experiences. Not only can problematic social or behavioral problems lead to conflict that disrupts the social environment, but they can also directly harm players. Most references to problem players in this study ended in the group removing the players, the players leaving the group, or the group breaking down.

### 3.2.1.1 Theme 5: Integration

As discussed in the Compelling versus Uncompelling Game World's theme, *D&D* games can create a rich, complex social environment with several layers of relationships, such as player-to-player, player-to-character, and character-to-character, which all have the potential to meet relatedness needs. As a social game played with a group of people, the most obvious avenue for relatedness needs is the player-to-player relationship, which is strongly reflected in the Social Cohesion and Conflict theme. As a construct, group cohesion consists of five components: social, task, collective, emotional, and structural cohesion (see Forsyth 2018, 128-136). Social, collective, and emotional cohesion align strongly with social connectedness and relatedness (Ryan and Deci 2017, 296-302). In this study, all players, including the DM, supported social relations by welcoming other players, being respectful, inclusive, encouraging, and trusting other players to reciprocate, a topic that has been discussed previously (Walsh and Linehan 2024, 47-49). Overall, this created a safe space for players to participate. Under these conditions, the resulting play generates positive emotions and experiences, further reinforcing social relationships and support.

However, group cohesion extends beyond social connectedness and relatedness and includes task and structural cohesion. These aspects of group cohesion focus more on the willingness to work together to accomplish goals than the interpersonal relationships between group members (Forsyth 2018, 130-131, 134-136). This component was also a significant element of the player experience, with players actively working together and collaborating. Collaboration functioned on the character-to-character level by working together as a team towards game-related goals and objectives, and on the player-to-player level by collaborating on storytelling and character development. This kind of overlap and transition from one social level to another was observed by Fine (1983, 196-200) in early research on *D&D*. This kind of cooperation and collaboration

amongst players and characters helps build group cohesion, which meets relatedness needs. The opposite was also discussed heavily: when players are disengaged, uncooperative, combative or display problematic social behavior, this damages group cohesion and thwarts the satisfaction of relatedness needs. This negative behaviour was exhibited both on the player-to-player level as well as on the character-to-character level. Thus, the onus is on all players in a *D&D* group to foster relatedness needs by creating a respectful, inclusive, encouraging, and trusting space with a perspective towards teamwork and collaboration. While the responsibility should not be placed solely on the DM, as the game's main storyteller and referee, DMs should be mindful of behavior that could damage social cohesion and relatedness and consider managing it as part of their rules' arbitration.

## 4. FINAL CONSIDERATIONS

There is growing evidence supporting the notion that TTPRGs, like *D&D,* can meet the basic psychological needs of players and have the potential to contribute to well-being and positive mental health outcomes (Adams 2013, 82; Lehto 2021, 81; McLaren, Oades, and Deery 2024a 11-12; McLaren, Deery, and Oades 2024b, 8-10; Poeller et al. 2023, 5-6; Walsh and Linehan 2024, 46-47). The satisfaction of basic psychological needs and their impact on well-being and positive mental health is an important area of consideration, given the rising interest in the therapeutic potential of these games. One area of particular interest is the role of the DM, who traditionally plays a significant role in any *D&D* gaming session. This role will likely form the cornerstone of therapeutically applied tabletop role-playing game-based interventions, with a therapist/practitioner acting as a DM or game facilitator using the game and its mechanics to achieve therapeutic outcomes.

This study used a reflexive thematic analysis, providing novel insight into the satisfaction and frustration of basic psychological needs in *D&D* 5th Edition players, and found that all players can influence relatedness needs by creating an inclusive, supportive, respectful, and encouraging environment. The DM's role appeared most central to overall needs satisfaction in *D&D*. Beyond merely enforcing rules, the DM acts as a world-builder, storyteller, and facilitator, shaping the game experience in ways that directly impact player engagement and need fulfillment.

By crafting a compelling world, embedding player characters, and providing meaningful choices, DMs can create an environment where players feel a sense of agency over their journey. Offering multiple pathways and challenges while allowing players to determine their strategies to overcome obstacles reinforces autonomy. At the same time, fair and consistent adjudication of rules ensures that players feel competent in their actions, with success perceived as a result of their skill and decision-making rather than DM interference. Additionally, fostering an environment of mutual respect, recognition, and encouragement helps strengthen relatedness, reinforcing the social bonds that make *D&D* uniquely engaging.

This behavior exemplifies autonomy-support, which involves assisting others in identifying and pursuing their goals based on their values, interests, and preferences, and forms a critical aspect of a need-supportive environment (Ryan and Deci 2017, 247, 320). Autonomy support has been found to enhance all basic psychological needs, which, in turn, contributes to engagement, enjoyment, and well-being (Ryan and Deci 2017, 246-247). However, effectively balancing autonomy-support with structured storytelling poses some challenges. A DM needs to navigate a space between player agency and narrative coherence of their game while ensuring player choices have meaningful consequences without overly restricting the creative freedoms of players. Additionally, differing group dynamics, preferences, and expectations may require DMs to be adaptable, with some players seeking deeper role-play experiences while others in the same group may prioritize more tactical gameplay. While challenging, a DM can create an immersive and fulfilling experience for their players by skillfully managing these elements. This approach will likely hold true for both casual play and more therapeutically-focused tabletop role-playing games, which autonomy-support literature and approaches can guide.

While the role of the DM was highlighted in this study, the players' role should not be discounted. According to Relationships Motivation Theory (Knee and Browne 2023, 164-168), a sub-theory in Self-Determination Theory, when people feel securely connected to others, they can become more expressive, are more likely to show their true selves, and feel more confident in exploring personal goals and developing their skills. Taken together all act to reinforce relationships, which also encourages more authentic and meaningful connections Thus, together, the DM and players can work to create an autonomy-supportive environment that has the potential to not only meet basic psychological needs but also support the development of higher-quality relationships and well-being in players.

The main implication of this study was furthering theoretical links between tabletop role-playing games, like *D&D*, Self-Determination Theory, need satisfaction, and autonomy-supportive literature. Self-Determination Theory and autonomy-supportive literature is well-developed and can be used to further our understanding of the relationship between tabletop role-playing games, well-being, and mental health. This study identified several characteristics that may contribute to developing and maintaining an autonomy-supportive game environment that enhances all basic psychological needs and contributes to engagement, enjoyment, and well-being (Ryan and Deci 2017, 246-247).

### 4.1. Limitations and Future Directions

While this study has important implications, some limitations warrant consideration. First, this study utilized reflexive thematic analysis, and the researcher's interpretations and positionality shaped the findings. While reflexivity was actively engaged throughout the research process through peer debriefing and continuous critical reflection, the themes generated remain subjective constructions rather than objective realities. Researchers with different backgrounds and epistemological standpoints might have identified alternative themes or emphasized different aspects of the data. Nevertheless, this study takes important steps to link theory that can benefit this field.

This study focused solely on *D&D* 5th Edition, which limited the scope of claims that can be made. While a common game, *D&D* is not reflective of all tabletop role-playing games, which vary greatly in genre, structure, and mechanics. Further research could consider how different tabletop role-playing games influence need satisfaction in players. This approach may help identify games and mechanics with greater capacity to support basic psychological need satisfaction and well-being, aiding therapeutic intervention development and implementation.

Participant data was collected from casual *D&D* players rather than players participating in therapeutically focused *D&D* games; thus, it is more reflective of casual play experiences. While findings provide insights applicable to therapeutically-focused tabletop role-playing game-based interventions, the fundamental difference in focus (therapy versus fun/entertainment) may change player experiences of need satisfaction. While the concept of autonomy-support may prove helpful in therapeutic gaming, research specifically exploring experiences in these environments would also be beneficial to understand potential therapeutic processes.

The research questions used in this study may have inadvertently influenced the participants' responses in two ways. (1) Several relationships were discussed in the study. While the player-to-player and character-to-character relationships emerged in more depth throughout themes and were associated with relatedness needs, the player-to-character relationship was less apparent. This outcome may have resulted from the phrasing of the open-ended questions, which encouraged participants to reflect on the influence of the DM and other players on their play experiences. By specifying the DM and players, the question may have inadvertently restricted more introspective and personal reflections associated with the player-to-character relationship. Future research could explore these relationships more specifically to determine their association with needs satisfaction. For example, how does the player-to-character relationship impact the relatedness needs of

players? (2) Most of the content participants discussed focused on the DM. The ordering of DM first in the research question may have also inadvertently influenced participant responses in this regard. Future research could explore DM and player roles individually to allow for a rich investigation of both roles. In addition, the perspectives of DMs could also be explored, such as how DMs navigate the challenges of establishing and maintaining autonomy-supportive environments, including player behaviors that may support these processes.

Finally, participants in this study were not entirely reflective of the *D&D* 5th Edition community, according to recent demographics data (Corliss 2021), and represent primarily Western countries, under-represent female players and younger and older players, while over-representing non-binary players, and players in the 25 to 29 age range. These factors should be taken into consideration when interpreting the study's findings.

## 5. CONCLUSION

This research demonstrates a relationship between *D&D* play and the satisfaction of basic psychological needs (autonomy, competence, and relatedness). According to the Self-Determination Theory, meeting these needs contributes to engagement, personal growth, and well-being (Ryan and Deci 2017, 239-246). This study found that all players can influence relatedness needs by creating an inclusive, supportive, respectful, and encouraging environment. The role of the DM emerged as most central to overall needs satisfaction in *D&D*. However, the DM and players can work to create an autonomy-supportive environment that can benefit all players. While findings such as this can help support casual play, they can also inform therapeutically-focused tabletop role-playing games intended to support well-being or mental health by informing training, game design, and implementation.

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**Patrick J. McLaren,** Ph.D., is a clinical psychologist specializing in the mental health and wellbeing of emerging adults. His research interests focus on the therapeutic applications of tabletop role-playing games, such as *Dungeons & Dragons*, to support mental health and wellbeing in young and emerging adult populations.

**Lindsay G. Oades,** (Prof.) is an internationally recognized wellbeing scientist, researcher, educator, and author. He is Deputy Dean of the Faculty of Education at the University of Melbourne and Professor of Wellbeing Science. His current research focuses on wellbeing literacy—the ways individuals communicate about and for wellbeing—as part of his development of Thriveability Theory.

**Ben Deery**, Ph.D., is a neuropsychologist, researcher, and lecturer in Early Childhood Education and Care and Learning Interventions at the Faculty of Education, University of Melbourne. His primary research interests include evidence-based learning interventions, executive functioning in childhood, mindfulness in the early years, play-based interventions, and the social-emotional development and mental health of children.

# Guiding the Game: A Model for How Facilitation, Psychological Safety, Cohesion, and Creativity are Interrelated in *Dungeons & Dragons* Groups

**Abstract:** Tabletop role-playing games (TTRPGs) are used in many applications ranging from community building to education to therapy. There is a persisting need to continue expanding our understanding of how practical successes and beliefs about the value of tabletop RPGs function as facilitators of benefits, like creativity, which are assumed to be inherent in tabletop RPG experiences. This exploratory survey research adds quantitative data analysis to help understand relationships between facilitation, psychological safety, group cohesion, and creativity in tabletop role-playing games by asking: what relationships exist between the variables in players' reported experiences of playing *Dungeons & Dragons* 5th edition (*D&D* 5e)? An internet survey of multi-item scales collected over 400 responses from participants who reported playing *D&D* 5e. Confirmatory factor analysis, principal components analysis, and regression analyses were conducted. This provided the following factors as valid constructs: facilitation, clarity, cohesion, support, and creativity. Regressions were analyzed among the factors, revealing these elements interrelated and indirectly related aspects in tabletop RPG experiences. We introduce a multi-item scale to measure facilitation in tabletop RPGs and outline a model for how facilitation is interrelated with clarity, cohesion, and support on one end, and creativity is interrelated with clarity, cohesion, and support on the other.

**Keywords:** psychological safety, role-playing games, facilitation, creativity, group cohesion

**Joe Lasley**
University of Southern Maine, USA
*joe.lasley@maine.edu*

**Antonio Ruiz Ezquerro**
Florida State University, USA
*arezquerro@gmail.com*

## 1. BACKGROUND

What's the deal with the use of a formerly shunned leisure activity recently made popular for personal growth? Back in the day, *Dungeons & Dragons (D&D)* was regarded as a dangerous thing from which most parents had to protect kids due to a moral panic, with the typical stereotype being that participants played in basements. Compare that to today, when organizations like Game to Grow, Geek Therapeutics, and countless popular media entities applaud the benefits of playing the modern edition of the same game. In this paper, we report some research findings about interesting aspects of how leisure *D&D* players reported experiencing key elements of gameplay that are relevant to other applications. Games are widely used for both game-based learning and as inspiration for gamification: the application of game design elements in non-game contexts like business or education (Karagiorgas and Niemann 2017). Game-based learning, in particular, has been used to enhance learning in higher education and still requires further investigation (Crocco, Offenholley, and Hernandez 2016). tabletop RPGs specifically are unique phenomena that serve as a meaningful subject of focus within the topics of game studies and designing experiential learning that utilizes a game designed originally for leisure.

TTRPGs are used in many applications ranging from community building to education to therapy just to name a few (Bean, Daniel and Hays 2020; Bowman 2010; Randi and Carvalho 2013). Therapeutically applied tabletop RPGs have recently been reported to include benefits such as social connection with peers and engagement with creativity (Kilmer, Rubin, Scanlon, and Kilmer 2024). The rise in popularity of *D&D* along with the establishment of applied tabletop RPG groups like Game to Grow has helped spread awareness and practical uses of tabletop RPGs for facilitating intentional outcomes like personal growth, learning, or creativity. The Transformative Play Initiative is dedicated to research, development, and education about how RPGs can transform or otherwise impact people in profound ways. Much of the popular claims about the benefits of tabletop RPGs involve a belief that they foster inherent qualities valuable for learning, like psychological safety or creativity. These assumptions lend practitioners and enthusiasts to transfer facilitation practices of leisure tabletop RPG play into intervention strategies or teaching methods (Bean, Daniel and Hays 2020; Garcia 2016). Learning, in many forms, may be an important mechanism for gaining benefits from games.

## 1.1 Learning in Role-Playing Games

Hammer et al. (2018) argue that RPGs, regardless of their presentation, are capable of promoting learning in ways that align with four foundational learning theories: behaviorism, cognitivism, constructivism, and the sociocultural approach. We will briefly explain the latter two. Constructivist theory argues that learning is the result of learners *constructing* knowledge after making meaning of new beliefs, experiences, and attitudes, and connecting the new information to previously held ideas, changing them in the process (Wadsworth 2004). In contrast, the sociocultural approach argues that learning requires social interactions. This interaction does not necessarily happen in person, it may occur through observation, replication, experimentation, or when internalizing feedback (Bandura 1986). Further, Bowman and Hugaas (2019) and Daniau (2016) argue that RPGs can be catalysts of *transformational experiences*, meaning that the role-play can have such an impact on the player that they adopt certain aspects of the experience into their identity or life, e.g., obtaining a higher degree of self-confidence when approaching strangers as a result of multiple role-played conversations with fictitious characters. Using the theories mentioned, one can explain learning in RPGs as a result of interacting in a space where experiential learning (constructivism) is constantly happening, and meaning-making is further supported by the created social environment (sociocultural approach) between players and their interactions (Hammer et al. 2018). In addition to learning, role-playing is another potential mechanism for the benefits of tabletop RPGs.

Role-playing is thought to be a tool for using, revealing, and developing several human skills, including creativity, in some intentional game designs (Daniau 2016). The transformative potential of tabletop RPGs is associated with various learning strategies such as design, debriefing, and critical reflection (Bowman and Hugaas 2019). Logistical elements such as play style, length of sessions, and frequency of sessions may all play a role in how or to what extent groups experience cohesion or psychological safety. Perhaps preferences for role-playing or tactical combat also play a role in what outcomes are developed by players.

Westborg (2023) created the Role-playing Game Design Matrix to classify RPG designs by separating them based on whether they pursue leisure or educational motives in their gameplay, with framing designs based on the types of learning desired. Westborg (2023) describes gameplay as the elements that have an effect on a player's in-game options, e.g., the plot, available actions to take, and the built world, among other elements. In contrast, Westborg describes framing as everything that occurs around the game to enhance the game experience. Framing may take the shape of a pre-game session, or a post-game debrief, among other forms. Her proposed model argues that given the proper framing, learning can be promoted in role-playing games, even those that were originally designed for leisure reasons. Creating a safe learning environment

comes into focus given that learning theories are promising for exploring the mechanisms of experiencing benefits with tabletop RPGs.

## 1.2 Leadership Learning in Larp

Some research on leadership and live action role-playing (larp) contributes to understanding leadership learning in role-playing games generally when approaching tabletop RPGs by highlighting the importance of experiential learning. Management techniques in RPG contexts show how structured facilitation can maintain engagement and support the experiential goals of the game, reflecting the cultural and social dynamics essential for crafting inclusive and relevant learning experiences (Harviainen 2013). Furthermore, Matyas and van Bilsen (2024) discussed practical applications and theoretical foundations necessary for utilizing RPGs to foster significant educational outcomes, particularly in developing leadership and team dynamics within a learning environment. Larps sometimes have an innate ability to simulate complex social settings that are rich in learning opportunities involving group dynamics (Balzac 2016). Participants in larps and other analog RPGs can experiment with various leadership styles and navigate group dynamics in real-time, which mirrors and potentially impacts their behaviors in non-game contexts. This dynamic setting requires a deeper exploration of the group dynamics and leadership interactions that shape the unique social environment of role-playing games. By focusing on *Dungeons & Dragons*, due to its popularity and colloquial connection with these hypotheses, this research adds to the stage for a broadening understanding of how specific role-playing environments can enhance and illuminate the complex interplay of leadership and group dynamics such as creativity, psychological safety, cohesion, and facilitation.

## 1.3 Creativity and psychological safety

Creativity in tabletop RPGs is potentially associated with psychological safety in addition to game design. Games are believed to provide engagement (Plass et al. 2015) and psychological safety (Bowman and Lieberoth 2018), aka alibi, that enhances the potential for learning and creativity. Psychological safety in this study is defined as emotional feelings of support, trust, and safety in a group gaming setting. The analysis showed two factors of psychological safety, which were named clarity and support. Hao, Yang, and Liu (2017) reported a link to creativity at work having observed that psychological safety had a crucial role in promoting employee creativity. Group psychological environments while playing tabletop RPGs have likewise been reported to generate both creativity and feelings of safety (Lasley 2022). RPG players have been reported to test higher in creativity than other participants (Chung 2013). Further, groups have reported powerful experiences involving collective creativity generated through the process of forming fantasy narratives together (Cover 2010). Fantasy role-playing games are spaces in which players exercise creativity alongside enacting important cultural markers and storytelling (Cragoe 2016). Creativity accompanies maintaining friendships (cohesion) among the reasons for playing *Dungeons & Dragons* (Wilson 2007). Questions about facilitation and cohesion become relevant when considering combining the links between creativity and psychological safety with intentions to leverage intentional learning in leisure activities.

## 1.4 Facilitation and Cohesion

In *D&D* specifically, a Dungeon Master (DM) is a referee and narrator charged with coordinating the challenges and details of a given adventure. This role is commonly referred to as a Game Master (GM) more broadly in the tabletop RPG context and is often implicitly responsible for managing the group as well as the game. For this paper, we use the terms somewhat interchangeably; using DM for *D&D* specific uses related

to the particular sample in this research and GM to refer to this role in any tabletop RPG (including DMs). Facilitation, usually by the GM, is thought to be highly important for impacting player and group experiences (Lasley 2020; Toles-Patkin 1986). Players often look to game facilitators to perform group functions such as resolving social conflicts (Bowman 2013). The GMs who facilitate these games use facilitation skills (balancing attention, resolving conflict, giving direction, prompting) that are useful in other areas of life (Bowman 2010; Daniau 2016; Garcia 2016). On the flip side, therapeutic interventions have been adapted and deployed through facilitated tabletop RPG play (Bean Daniels and Hays 2020). In either sense, the facilitation provided by the GM constitutes aspects of the game experience that may influence the cohesion of a group or the sense of safety for players.

Group dynamics, like cohesion and leader relationships, also link facilitation to players' experience of the gaming environment, influencing individual experiences of psychological safety and creativity (Lasley 2020; Yi et al. 2017). Other group functions, such as support from members and playful, inclusive normed behavior, add cohesion to the gaming environment through member interactions (Lasley 2020). The interrelated nature of facilitation, psychological safety (clarity and support), cohesion, and creativity is important in many applied contexts, making their existence in leisure tabletop RPG play of interest to practitioners in a variety of disciplines.

## 1.5 Opportunity for research

More quantitative data should be analyzed regarding psychological safety in tabletop RPG groups,  with a specific focus on facilitation, group cohesion, and creativity. Claims about using tabletop RPGs as vehicles for experiential learning rest on the presumption that the games themselves generate psychological safety or creativity. Therefore, it is important to see if or to what extent facilitation and psychological safety exist, or may be interrelated, in these games in their leisure forms to inform the application and facilitation of tabletop RPGs in therapeutic, educational, and training settings.

There is a persisting need to continue expanding our understanding of how practical successes and beliefs about the value of tabletop RPGs function as a vehicle for benefits like creativity that are assumed to be somehow inherent in tabletop RPGs as an experience or interaction system. This opens up preliminary questions about what forms of facilitation occur in tabletop RPG experiences and how they may be linked to group cohesion, psychological safety, and creativity. It will be helpful to better understand the inherent forms of facilitation and assumed benefits of tabletop RPG experiences, especially when importing them into other contexts.

This study began with an aim to explore relationships between game design elements and group creativity in tabletop RPGs, specifically *Dungeons & Dragons* 5th Edition (*D&D* 5e), and resulted in a reclassification of factors within the original concepts of group creativity and psychological safety in addition to the creation of the Facilitation scale. *D&D* 5e was chosen due to its popularity, intentionally customizable design, the researcher's familiarity with the game, access to participants, and an effort to focus the scope of the study in a meaningful way.

The study began with using multi-item scales to measure DM facilitation, group creativity, and psychological safety in *Dungeons & Dragons 5e* games. Factor analyses refined the original variables into facilitation; clarity and support (factors of psychological safety); and cohesion and creativity (factors of group creativity). Psychological safety was a previously researched construct using a modified version of an established multi-item scale. Group creativity was originally defined for this study as the use of the imagination or original ideas to transfer concepts from a person or group's internal reality into a shared external reality using an existing creativity scale with added group items. The analysis showed these survey items to comprise two factors later renamed as cohesion (being in a group) and creativity (making ideas real). Thus, this paper

is about the newest iteration of variables and their component factors: facilitation, clarity, cohesion, support, and creativity.

## 1.6 Research Purpose

The purpose of this research was to investigate the assumed associations among facilitation, psychological safety, group cohesion, and creativity in *D&D* games. In addition to gaining an understanding of tabletop RPGs, this study aimed to identify what constitutes the variables in this study as reported by this sample. We began with existing, sometimes modified, scales for creativity and psychological safety alongside original items for group cohesion and an original scale for DM facilitation. Given the popular combination of facilitating games with other intents such as teaching and therapy, we refined the construct of DM facilitation and analyzed how facilitation is interrelated with psychological safety, cohesion, and creativity. These findings show how facilitation, cohesion, safety, and creativity were constructed by *D&D* players, as reported by participants.

## 1.7 Research Questions

The primary research question: "What relationships exist between facilitation, group creativity, and psychological safety in Tabletop Role-Playing Games?" developed into the re-organization and definition of constructs. We were curious about how the responses from these participants aligned and compared with the existing constructs. What principle components and underlying associations are reported by *D&D* players among existing constructs of psychological safety, creativity, and group cohesion?

Further investigation explored aspects of facilitating tabletop RPG experiences. This new construct is composed of items tied to the Dungeon Master (DM) including reward allocation, flexibility with rules, plot linearity, balancing attention among players, and DM role-playing (identified through qualitative content analysis of DM facilitating strategies). This resulted in the creation of a new multi-item scale measuring the facilitation by a DM. This part of the research asked: How is facilitation reported by *D&D* players and what links exist to the other variables in this study sample?

## 2. METHOD

In the exploration of gameplay elements and psychological constructs within tabletop role-playing games, particularly *Dungeons and Dragons* 5th Edition (*D&D* 5e), this study employed a virtual survey to gather data from an engaged community of players. Utilizing an internet-based questionnaire distributed across various online platforms dedicated to *D&D* 5e enthusiasts—such as Reddit, Facebook groups, and Twitter—the research successfully collected over 400 completed responses to form a convenience sample. This method secured approval from the University Institutional Review Board and adhered to informed consent principles. The dataset, comprising 415 participants, provided a robust sample for examining facilitation, cohesion, clarity, support, and creativity.

## 2.1 Sample

A virtual survey form was distributed in online *D&D* 5e groups on sites including Reddit, soliciting over 400 completed responses from self-reported players of *D&D* 5e. There are a few descriptive statistics that illustrate the participants' experience with their latest *D&D* 5e campaign (see Table 1).

**Table 1**: Sample's tabletop RPG Gaming Experience (N=415)

| Category | Detail | Percentage | Participants |
|---|---|---|---|
| **Number of Meetings** | Only once | 12 | 50 |
| | Two to five times | 26.3 | 109 |
| | Six to ten times | 21 | 87 |
| | More than ten times | 40.7 | 169 |
| **Duration of Game Sessions** | Two hours or less | 5.8 | 24 |
| | More than two but less than five hours | 77.3 | 321 |
| | More than five but less than eight hours | 14.7 | 61 |
| | More than eight hours | 2.2 | 9 |
| **Frequency of Meetings** | Once a year | 7.7 | 32 |
| | Less than once per month | 10.8 | 45 |
| | About once per month | 14.2 | 59 |
| | More than once per month but less than once per week | 38.8 | 161 |
| | Weekly or more often | 28.4 | 118 |
| **Role Experience** | Played Dungeon Master role | 78.8 | 327 |
| | Not played Dungeon Master role | 21.2 | 88 |
| | Played Player role | 99.5 | 413 |
| | Not played Player role | 0.5 | 2 |

When asked about the number of meetings they have had, 12% reported only having played once, 26.3% indicated having played between two and five times, 21% had met six to ten times, and 40.7% had met more than ten times. Participants were more consolidated regarding the duration of their game sessions. 5.8% indicated playing for two hours or less, 77.3% reported playing more than two but less than five hours per session, 14.7% shared playing more than five but less than eight hours a session, and only 2.2% played longer than eight hours in a session. Regarding the frequency of their meetings, 7.7% reported meeting once a year, 10.8% mentioned playing less than once per month, 14.2% said they played about once per month, 38.8%

claimed meeting more than once per month but less than once per week, and 28.4% shared playing weekly or more often. Additionally, out of the 415 participants, 78.8% claimed to have played a Dungeon Master role at some point in their lives, and the remaining 21.2% had not. In contrast, 99.5% claimed to have taken a player role in the past, and only 0.5% had not.

## 2.2 Instruments

The survey instrument consisted of 46 items in total. These included screening questions, general logistics questions with categorical response options, and a Likert matrix for the multi-item scales. The screening questions were simple, asking if the participant was 18 years of age and had played *D&D*. The majority of the survey items (all multi-item scales for facilitation, psychological safety, cohesion, and creativity) utilized a matrix of statements and a 7-point Likert-type scale ranging from strongly disagree to strongly agree.

Three main multi-item scales were included in the survey in addition to descriptive information. The scales measured facilitation, psychological safety, cohesion, and creativity with additional questions about the group and game logistics. DM facilitation items were added to a new scale after a qualitative content analysis of GM Tips for tabletop RPGs (Mercer 2016). The new facilitation items were used as a measure of the DM's influence on the players' experience of the game through their facilitation of the game. Psychological safety items were modified and combined from several existing scales (Edmondson 1999; May, Gilson and Harter, 2004; Simonet, Narayan and Nelson 2015). Group cohesion items were added to the creativity scale. A creativity scale was composed of existing scales (Lang and Lee 2010; Li, Fu, Sun and Yang 2016) and modified for the context of this study by changing the wording to be about playing a tabletop RPG. Modifications for psychological safety and creativity scales consisted of rewording items so that they made sense in the context of playing a tabletop RPG, as opposed to working or playing hockey, while preserving the original meaning of the item.

## 2.3 Research Protocol

This study utilized an internet survey to collect a convenience sample of over 400 *D&D* 5e players. Since there is no dependable list of tabletop RPG players from which to create a sample frame and this study is primarily concerned with relationships between variables as opposed to generalizing population parameters, a convenience sample is the optimal form of data collection. The limitations of convenience sampling are acceptable for this study given its exploratory nature.

The survey was constructed using Qualtrics software and distributed via the internet using popular fan sites and social networks for *D&D*. These included *D&D* player Facebook groups, subreddits, Twitter hashtags, etc. Some popular social media accounts assisted with sharing an invitation to participate with exposure to thousands of users. The internet community of *D&D* players is known for its high level of engagement, which was leveraged to help generate a large sample size. The target sample was people who have played *D&D* 5e as a player. The following message was used for solicitation:

> I am studying creativity in *Dungeons & Dragons*. I am a fan, player, DM, and researcher working on a PhD [degree and institution redacted]. If you have played *D&D* 5e please take 7 minutes to complete this survey and share it with your friends.
> Have Fun!

All data was downloaded and converted to .sav, .Rda, and .xls for further analysis with SPSS, R Studio, and Excel respectively. Each participant and their answers were treated as an individual case. Because the sur-

vey used a Likert scale to record responses, all participant answers were given a score from one to seven, with one representing "strongly disagree" and seven meaning "strongly agree." Only one question in the survey used a reverse score ("Players fear being judged negatively by other players "). Questions were then split into the three categories they represented: Dungeon Master skills, psychological safety, and group creativity. Each participant's response received a score on each of the three categories based on the sum of their answers. This method made it possible to analyze and compare the samples' answers to each question as well as the category.

## 2.4 Statistical Analysis

To address concerns regarding the validity of the modified surveys, we used R Studio to conduct a confirmatory factor analysis (CFA) that considered all 32 items from the multi-item scales split into their original scales. The results showed an NNFI (Tucker-Lewis Index) = .808, CFI = .821, and RMSEA = .073. We wondered whether some of the items across the surveys could be considered somewhat repetitive, and thus, elevated the scores of each scale. To address this issue, we conducted a principal component analysis (PCA) for each scale using SPSS Statistics 26. One of the advantages of conducting a PCA is that it allows for specific items on various scales to cluster together into a new and unique category. Knowing there may be a correlation between the observed factors, we ran the PCAs with Promax rotation and Kaiser normalization to shift the scale mean as the average score (Kaiser 1958). We proceeded to run a series of multivariate regression analyses to better understand the relationships between all confirmed factors.

## 3. RESULTS

The analyses conducted in this study resulted in confirming the facilitation factor items in the DM scale and reorganizing the multi-item scales into new factors. This provided the following factors as valid constructs that came out of the original constructs for the DM, psychological safety, group cohesion, and creativity.. The confirmed factors were facilitation, clarity, cohesion, support, and creativity. Regressions were analyzed among the new factors, revealing the interrelated and indirectly related aspects of these elements in participants' tabletop RPG experiences.

## 3.1 Factors

The original Dungeon Master scale, which consisted of seven items, remained at seven items. However, it was split into a two-factor solution. We named factor 1 facilitation and factor 2 objects (see Table 2). The combined factors explained 45% of the variance among the PAR-balanced sub-sample (see Appendix 1 to compare the percentage of variance of each factor).

The original Psychological Safety scale consisted of 12 items. It was split into an 11-item two-factor solution with factor 1, which we named support, and factor 2, which we named clarity (see Table 3). Clarity and support were named the two sub-factors of psychological safety due to the factor loadings. The original scale was an established measure for psychological safety as a single variable. The results in this dataset loaded into two sub-factors within the psychological safety variable and we chose names that were fitting based on the survey items in each sub-factor loading. The combined factors explained 51% of the variance among the PAR-balanced sub-sample (see Appendix 2 to compare the percentage of the variance of each factor).

**Table 2:** Factor Loadings and Communalities for Varimax Rotated Two-Factor Solution for 7 DM Items: Facilitation and Objects (N=412)

| | 1: Facilitation | 2: Objects | Communality |
|---|---|---|---|
| 1. Player rewards are provided appropriately | **0.67** | -0.11 | 0.49 |
| 2. The Dungeon Master is able to effectively debate rules | **0.82** | -0.17 | 0.68 |
| 3. The Dungeon Master is open to feedback | **0.81** | 0.18 | 0.69 |
| 4. The Dungeon Master commits to role-playing the non-player characters | **0.64** | -0.14 | 0.43 |
| 5. Attention is balanced among all the players | **0.61** | 0.11 | 0.38 |
| 6. The plot of our story is linear | -0.04 | **0.75** | 0.56 |
| 7. We rely on detailed maps | 0.00 | **0.74** | 0.55 |

**Note:** Survey items in the white box fall under factor 1: Facilitation. Survey items 6 and 7 fall under factor 2: Objects. No survey items were dropped by the PCA's results.

**Table 3:** Factor Loadings and Communalities for Promax Rotated Two-Factor Solution for Support and Clarity for 12 PS Items (N=404)

| | 1: Support | 2: Clarity | Communality |
|---|---|---|---|
| 1. Players share openly | **0.50** | 0.28 | 0.49 |
| 2. Players (not necessarily the characters) are honest | **0.68** | -0.05 | 0.43 |
| 3. Players are permitted to contribute ideas | **0.55** | 0.07 | 0.35 |
| 4. Players are able to effectively debate | **0.62** | 0.12 | 0.48 |
| 5. It is okay to make mistakes | **0.68** | 0.06 | 0.51 |
| 6. Players are supportive | **0.77** | 0.08 | 0.67 |
| 7. Players are open to feedback | **0.65** | 0.17 | 0.58 |
| 8. The goals each player has for playing are clear | -0.10 | **0.80** | 0.56 |
| 9. Everyone shares a common understanding about what kind of experience we want when playing together | 0.19 | **0.64** | 0.59 |

| | | | |
|---|---|---|---|
| 10. The goals of the challenges that characters face are clear | -0.22 | **0.86** | 0.56 |
| 11. Players take responsibility for their role in the group | 0.25 | **0.55** | 0.53 |
| 12. Players do not fear being judged negatively by other players | 0.80 | -0.40 | 0.42 |

**Note:** Survey items in the white box fall under factor 1: Support. Survey items 8-11 fall under factor 2: Clarity. Survey item 12 was dropped by the PCA's results.

**Table 4:** Factor Loadings and Communalities for Promax Rotated Two-Factor Solution for Cohesion and Creativity for 13 GC Items (N=409)

| | 1:Cohesion | 2: Creativity | Communality |
|---|---|---|---|
| 1. Each person makes unique contributions to our experience | **0.64** | 0.14 | 0.53 |
| 2. People in the group "get into" role-playing characters | **0.55** | 0.19 | 0.46 |
| 3. There is a sense that we have created something together | **0.78** | 0.05 | 0.65 |
| 4. We are all "in it together" | **0.93** | -0.14 | 0.73 |
| 5. There is a sense of continuing development in the group | **0.89** | -0.05 | 0.75 |
| 6. Our group has a sense of community | **0.88** | -0.17 | 0.63 |
| 7. The group comes up with new ideas | 0.19 | **0.67** | 0.63 |
| 8. The group easily adapts new ways of playing | 0.07 | **0.70** | 0.55 |
| 9. This group comes up with new tactics for solving problems | 0.05 | **0.72** | 0.57 |
| 10. The group experiments with new concepts | 0.11 | **0.76** | 0.69 |
| 11. The group generates original stories | 0.40 | 0.39 | 0.49 |
| 12. The group explores new knowledge | 0.44 | -0.68 | 0.32 |
| 13. The group easily customizes new mechanics for our game | 0.32 | 0.39 | 0.39 |

**Note:** Survey items in the white box fall under factor 1: Cohesion. Survey items 7-9 under factor 2: Creativity. Survey items 10-13 were dropped by the PCA's results.

Lastly, the original Group Creativity scale consisted of 13 items and was split into a 10-item two-factor solution with factor 1, which we named cohesion, and factor 2, which we named creativity (see Table 4). The combined factors explained 57% of the variance among the PAR-balanced sub-sample (see Appendix 3 to compare the percentage of the variance of each factor).

We then ran a second CFA to compare the validity of the new scales compared to those of the original. The CFA considered the 28 survey items split into their modified factor scales. The results showed an NNFI (Tucker-Lewis Index) = .883, CFI = .896, and RMSEA = .062, indicating it was a better model than the original. However, it resulted in the deletion of the "objects" factor as it did not have enough validity to justify inclusion.

### 3.2 Regression

Using the modified scale factors, we proceeded to run a series of multivariate regression analyses to better understand the relationship between all confirmed factors (facilitation, clarity, cohesion, support, and creativity). Each of the five regressions treated one of the new factors as a dependent variable and the rest as independent variables (see Table 5).

**Table 5:** Regression Coefficient Values for Each Model

| Dependent Variable | Independent Variables | | | | | | Model's Results | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Facilitation | Clarity | Cohesion | Support | Creativity | Constant | Adj. $R^2$ | df | F | Sig. |
| Facilitation | | 0.271*** | 0.178*** | 0.176*** | 0.06 | 8.481*** | 0.427 | 4(393)=397 | 74.978 | <.001 |
| Clarity | 0.171*** | | 0.144*** | 0.203*** | 0.091* | 0.624 | 0.501 | 4(393)=397 | 100.83 | <.001 |
| Cohesion | 0.234*** | 0.301*** | | 0.474*** | 0.325*** | -5.106*** | 0.634 | 4(393)=397 | 172.728 | <.001 |
| Support | 0.181*** | 0.329*** | 0.369*** | | 0.147** | 13.086*** | 0.61 | 4(393)=397 | 155.938 | <.001 |
| Creativity | 0.057 | 0.138* | 0.235*** | 0.137** | | 3.165* | 0.393 | 4(393)=397 | 65.365 | <.001 |

### 3.3 Facilitation

When treating facilitation as the dependent variable, the regression explained 42.7% of the variance ($F_{(4, 393)}$ = 74.98, p < .001, $R^2$ = .433, $R^2_{Adjusted}$ = .427). The results showed that cohesion ($\beta$ = .178, p<.001), clarity ($\beta$ = .271, p<.001), and support ($\beta$ = .176, p<.001), were significant predictors of creativity. Creativity was not a significant predictor of facilitation.

### 3.4 Clarity

When treating clarity as the dependent variable, the regression explained 50.1% of the variance ($F_{(4, 393)}$ = 100.83, p < .001, $R^2$ = .506, $R^2_{Adjusted}$ = .501). The results showed that creativity ($\beta$ = .091, p.026), support ($\beta$ = .203, p<.001), facilitation ($\beta$ = .171, p<.001), and cohesion ($\beta$ = .144, p<.001), significantly predicted clarity.

### 3.5 Cohesion

When treating cohesion as the dependent variable, the regression explained 63.4% of the variance ($F_{(4, 393)}$ = 172.73, p < .001, $R^2$ = .637, $R^2_{Adjusted}$ = .634). The results showed that creativity ($\beta$ = .325, p<.001), support ($\beta$ = .474, p<.001), clarity ($\beta$ = .301, p<.001), and facilitation ($\beta$ = .234, p<.001), were all significant predictors of cohesion.

**3.6 Support**

When treating support as the dependent variable, the regression explained 61% of the variance ($F_{(4, 393)}$ = 155.94, p < .001, $R^2$ = .613, $R^2_{Adjusted}$ = .610). The results showed that facilitation ($\beta$ = .181, p<.001), cohesion ($\beta$ = .369, p<.001), clarity ($\beta$ = .329, p<.001), and creativity ($\beta$ = .147, p<.005), were all significant predictors of support.

**3.7 Creativity**

Using creativity as the dependent variable, the regression explained 39.43% of the variance ($F_{(4, 393)}$ = 65.36, p < .001, $R^2$ = .400, $R^2_{Adjusted}$ = .393). The results showed that support ($\beta$ = .137, p.005), cohesion ($\beta$ = .235, p<.001), and clarity ($\beta$ = .138, p<.026), were significant predictors of creativity. Facilitation was not a significant predictor of creativity.

**4. DISCUSSION**

This study investigated the constructs and assumed associations among facilitation, psychological safety, group cohesion, and creativity in *D&D* games. Before conducting a regression analysis that demonstrated the interrelatedness of the variables, the components of existing constructs were confirmed. Mainly, we report on quantitative data analysis of the variables to begin understanding the interrelated psychological constructs of tabletop RPG groups, as reported by this sample of *D&D* players. Of particular interest is the finding that facilitation and creativity were not directly linked with each other but were both linked with the other variables (clarity, cohesion, and support) which were all interrelated, presenting nuances for understanding how tabletop RPG group dynamics are facilitated. Further, we introduce a multi-item scale measuring facilitation in tabletop RPGs specifically related to the role of the GM that can inform the combination of game master facilitation items with professional facilitation skills used in educational pedagogies and therapeutic interventions in attempts to foster clarity, cohesion, and support in applied tabletop RPGs. These findings will be helpful for practitioners who apply tabletop RPGs in contexts with intended outcomes or to further study such applications.

The pre-existing scales for established psychological constructs in this study included psychological safety and creativity. Items for group cohesion were added and a multi-item scale for DM facilitation was refined, consisting of items identified in a previous qualitative analysis of DM strategies and advice. Psychological safety is of unique interest in this sample as it resulted in two factors revealed through the analysis.

**4.1 Psychological Safety**

While previous research about psychological safety has highlighted its importance for teams and learning, the construct consisted of two factors (clarity and support) in this analysis. This is encouraging, supporting the idea that psychological safety is indeed present and important to creativity in tabletop RPG experiences. The identification of two factors prompts further insight. Clarity and support help to define sources and elements of psychological safety. The clarity items make sense from a leadership perspective, given that orientation and direction are key functions of authority and aspects of group dynamics (Tuckman 1965). The specific items for the clarity factor relate to group functions that are provided by a facilitator and underpinned by members of the group. The specific items for the support factor are primarily about the group members fulfilling supportive functions in group dynamics. These findings suggest that facilitators as well as group members can impact psychological safety in the group through varying functions of group dynamics. These group dynamics begin forming the nexus of interrelated constructs shown through our analysis.

### 4.2 The Nexus Network Model

The variables in this study formed a network of interrelated constructs. Each component, or node, is based on the refined factor loadings which were renamed based on the wording of specific items in the scale. Facilitation encompasses the items describing how the DM interacted in their role guiding the players during the game including fairness, openness, attention, and role-playing. Clarity is based on knowing what to do and being on the same page with other players. Cohesion included feelings of playing together and a sense of community. Support involved typical psychological safety items related to interactions between group members like honesty, non-judgment, supportiveness, and contributing ideas. Creativity was composed of established items about coming up with new ideas, approaches, solutions, and adapting. With one exception, all the variables in this study are interrelated with each other and mutually influence one another. The exception, which is quite notable, is the lack of a direct link between facilitation and creativity. There is a trio of interrelated group dynamics variables (clarity, cohesion, support) in the middle forming a nexus between and interrelated with both facilitation and creativity respectively. The data and analysis conducted in this study support the organization of these refined factors into a network framework in which facilitation is interrelated with clarity, support, and cohesion on one end, and creativity is interrelated with clarity, support, and cohesion on the other end (see Figure 1).

**Figure 1:** The Nexus Network Model of tabletop RPG Group Dynamics
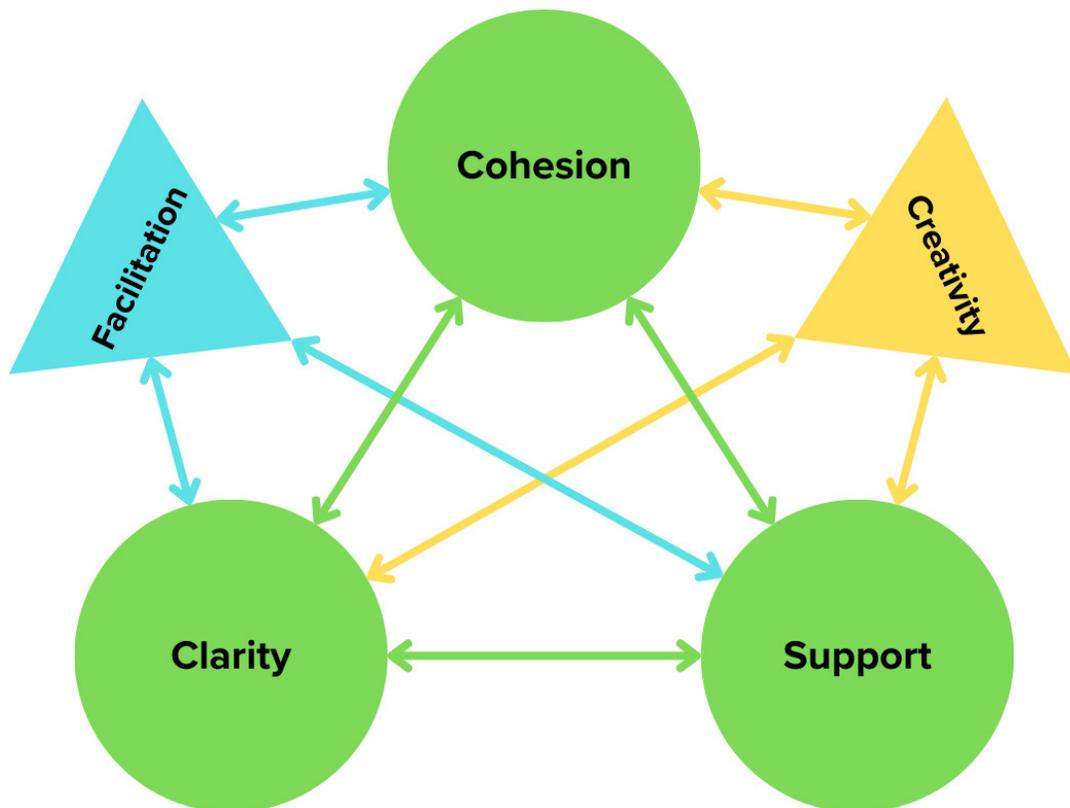


**Note:** Green circles represent the trio of group dynamics and interactions, the blue triangle represents the DM's facilitation, and the yellow triangle represents creativity.

Some aspects of the group environment are influenced by the facilitation while others are influenced

by group dynamics and relationships among group members. This framework is congruent with the mediating role of psychological safety between leadership and creativity observed in work groups (Yi et al. 2017) and supports the basic idea that tabletop RPGs are human groups and they share fundamental functions with the way humans interact in other groups. Not surprisingly, gaming groups are similar to other groups in that there is a facilitating role of authority that manifests as a function of a group interrelated with other functions such as the needs for orientation, group cohesion, and support among members (Tuckman 1965).

It remains important to continue differentiating between work groups and gaming groups because the gaming environment involves play and fantasy in unique ways. While gaming environments are group environments, the mental frames involved in playing the game form a unique psychological context (Lasley 2022; Vorobyeva 2015).

This model begins articulating how common group functions manifest and are interrelated in gaming environments. For example, this model is congruent with the previous research reporting that leadership and creativity in a gaming environment both depend on the use of authority by a game master and are also fostered in the group dynamics generated through playing a tabletop RPG (Lasley 2020). It is important to note that specific behaviors for facilitation, clarity, cohesion, and support may look different in different groups and contexts. This model is a starting point for inquiring and trying to understand how these group functions manifest in tabletop RPG interactions.

### 4.3 Facilitation

A preliminary scale for measuring the facilitating role of a game master in tabletop RPGs is presented along with the distribution of psychological safety into group function categories of clarity and support, adding nuance to how psychological safety can be understood in tabletop RPG environments. The interrelated nexus model presents an important clarification for applied RPG practitioners and may contradict some assumptions or desires to be able to intentionally generate creativity mainly through design and facilitation. One implication is that design and facilitation efforts should focus on serving the clarity, cohesion, and support functions of a group to make space for the group to generate opportunities for creativity. This will complicate the intended outcomes desired in some contexts that depend on producing certain results because major factors, such as group cohesion, that are not solely controlled by the facilitator, will influence the dynamics among the players and potential outcomes, like creativity. On the other hand, processes such as group leadership coaching that intentionally rely on group dynamics to implement leadership development practices may be able to integrate design and facilitation strategies with group processes that are simultaneously tabletop RPG and group coaching practices. This type of applied strategy adds complexity and nuance to the facilitator's role and the players' experiences, warranting continued exploration of the integration of tabletop RPG with professional practices (ie, education or therapy).

### 4.4 Significance

This model is the first to quantitatively measure psychological safety in *D&D* groups and the first to begin validating a multi-item measure of DM facilitation. Psychological safety is often treated as a single construct. This model recognizes that psychological safety is not only a construct that is sometimes present in *D&D* groups, as assumed but never empirically verified, but that it contains two main factors that lend an understanding of how both facilitators and group members contribute to their experiences. Practitioners assume that facilitation is primarily responsible for the outcomes and experiences of a group. This model provides both support and adds some nuance to understanding how facilitation is critically interrelated with group dynamics but does not solely guarantee certain experiences or outcomes, such as psychological safety or creativity.

Traditional leadership theories, often referred to as *Great Man* theories, focus on the traits and behav-

iors of an individual leader—typically a charismatic man—who wields authority over others. These theories emphasize inherent personal qualities, hierarchical control, and productivity, aligning with classical management approaches. In contrast, contemporary leadership theories have evolved to account for the role of followers, group dynamics, and contextual influences. Modern frameworks recognize leadership as a relational and networked process, addressing complexity, shared leadership, and adaptive interactions. This shift from *leader* to *leadership* is well-documented in Dugan (2024), illustrating the transition from trait-based authority to collaborative and situational leadership models. The reciprocal relationships in this analysis also point to a mutual influence between the group and the facilitator in contrast to traditional top-down or linear assumptions about leadership and teaching.

### 4.5 Limitations

This research relied on a convenience sample to collect responses to an Internet survey, which comes with the potential for self-selection bias in taking internet surveys, so it is unknown how this effect may be present in this sample or if participants from various platforms (ie, Reddit, Facebook) differ. Sampling criteria limited participation to the same game, *D&D*, which aids in providing some consistency. Many possible sampling characteristics are relevant for future research, which were not collected in this initial exploratory survey. These include: gender, cultural groups, geographical regions, and modality (in-person or online). The results may not be generalizable to all tabletop RPGs, or even to all *D&D* groups, or instances of playing. The GM facilitation scale is improved from the original qualitatively analyzed items and may not be all-encompassing as there may be additional items about facilitation of tabletop RPGs to add which were not part of the source material for this scale. It is also conceivable that different games may have unique forms of facilitation or rely more heavily on different items.

### 4.6 Implications for Research

The GM facilitation scale can be used and developed further in future research about facilitation in tabletop RPG groups that explore applied RPG strategies. The combination of leisure gaming facilitation with professional methods (ex. pedagogies and therapeutic interventions) also needs to be directly investigated. Other aspects of design and accompanying functional activities like reflection are yet to be comprehensively analyzed on a large scale. Crucially, the way power and privilege impact all of the factors in the Nexus Network model must be interrogated since *D&D* is known to involve problematic structures and histories (Garcia 2017). Other games and formats such as live action role-play should be included. There are many desired benefits and intended uses for applied RPGs that are yet to be investigated in peer-reviewed research, beyond creativity. Both qualitative and quantitative research projects should continue to investigate the experiential and interpersonal aspects of playing tabletop RPGs as they relate to other forms of facilitation and functional interactions in groups with intended outcomes.

### 4.7 Recommendations for Practice

The GM facilitation scale can inform facilitation in tabletop RPG groups. DMs can rely on the items in this scale to prioritize what skills and behaviors they utilize while facilitating. These findings can inform the use of tabletop RPGs applied to education, personal growth, creativity, and training contexts by providing some specific reports about the use of facilitation when attempting to generate or leverage psychological safety, group cohesion, or creativity.

## 5. CONCLUSION

This study has provided valuable insights into the intricate dynamics of facilitation, psychological safety, group cohesion, and creativity within the context of tabletop role-playing games (TTRPGs), specifically focusing on *Dungeons & Dragons* 5th Edition (*D&D* 5e). By employing a multi-faceted survey research design, we successfully identified factors of key constructs including facilitation, clarity, cohesion, support, and creativity, offering a nuanced understanding of how these elements interplay to shape the gaming experience.

The findings revealed that facilitation by the Dungeon Master (DM) influences the levels of clarity, cohesion, and support within the group, which in turn are crucially related to creativity. Interestingly, while facilitation itself did not directly link with creativity, it played an essential role in fostering an environment interconnecting with psychological safety and group cohesion, thereby indirectly linking to creativity. This emphasizes the importance of skilled facilitation in creating a supportive and cohesive group dynamic, which is conducive to creativity, and the equally important group dynamics involved in playing *D&D*.

Moreover, the introduction of the Nexus Network Model has provided a robust framework for understanding the interconnectedness of these constructs. This model highlights the central role of psychological safety, characterized by clarity and support, along with cohesion in mediating the possible link between facilitation and creativity. By situating facilitation and creativity as separate nodes each interconnected by the nexus of clarity, cohesion, and support, this model offers a nuanced view of how group dynamics in tabletop RPGs can be leveraged to achieve desired outcomes.

The development of a multi-item scale to measure DM facilitation represents a significant advancement in tabletop RPG research. This scale not only provides a tool for future studies to quantitatively assess facilitation practices but also offers practical guidance for DMs aiming to enhance their facilitation skills. These insights are particularly relevant for practitioners seeking to apply tabletop RPGs in educational, therapeutic, or training contexts, where the intentional cultivation of psychological safety and group cohesion can lead to enhanced creativity and personal growth.

In conclusion, this study underscores the complex yet pivotal role of facilitation in tabletop RPGs and its indirect influence on creativity through the mediation of psychological safety and group cohesion. Future research should continue to explore these dynamics across different tabletop RPG systems and contexts, including live action role-play and other game formats. Additionally, examining the impact of power and privilege within these gaming environments will be crucial to fully understand and harness the transformative potential of tabletop RPGs.

## STATEMENTS AND DECLARATIONS

### Ethical considerations

The study was approved by the University of San Diego Institutional Review Board (IRB-2018-498).

### Consent to participate

All participants provided electronic informed consent before participating by acknowledging the consent information before taking the electronic survey.

**Consent for publication**

Not applicable.

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**APPENDICES**

**Appendix 1**

*Eigenvalues, Percentages of Variance and Cumulative Percentages for Factors for 7 DM Items*

| Factor | Eigenvalue | % of variance | Cumulative % |
|--------|-----------|---------------|--------------|
| 1 | 2.58 | 36.88 | 36.88 |
| 2 | 1.20 | 17.15 | 45.04 |

**Appendix 2**

*Eigenvalues, Percentages of Variance and Cumulative Percentages for Factors for 12 PS Items*

| Factor | Eigenvalue | % of variance | Cumulative % |
|--------|-----------|---------------|--------------|
| 1 | 5.06 | 42.18 | 42.18 |
| 2 | 1.11 | 9.29 | 51.48 |

**Appendix 3**

*Eigenvalues, Percentages of Variance and Cumulative Percentages for Factors for 13 GC Items*

| Factor | Eigenvalue | % of variance | Cumulative % |
|--------|-----------|---------------|--------------|
| 1 | 5.98 | 46.03 | 46.03 |
| 2 | 1.40 | 10.80 | 56.83 |

**Joe Lasley (Ph.D.),** researches how and uses role-playing games to foster psychological environments, group dynamics, and accelerate metacognition through role-awareness. Lasley is an assistant professor of leadership and organizational studies at University of Southern Maine and a leadership development consultant specializing in experiential and transformational learning. He has designed and facilitated role-playing games for leadership development across multiple industries. He holds a Ph.D. in Leadership Studies, multiple degrees in Organizational Communication, Psychology, and Higher Education Administration, and is an International Coaching Federation certified Leadership Coach.

**Antonio Ruiz Ezquerro (Ph.D.)** is a leadership educator and game designer based in New York, originally from Mexico City. He specializes in leadership pedagogy, game design, and the integration of leadership principles in role-playing games. Antonio teaches various leadership and game design courses as an adjunct professor at Florida State University's Leadership Learning Research Center. He holds a Ph.D. in Higher Education from Florida State University, where he also earned graduate certificates in college teaching and institutional research. Previously, Antonio completed his M.S. in Higher Education at the same institution and a Marketing BBA from James Madison University.

# An Exploration of Emotional Resilience Developed Through Tabletop Role-Play

**Abstract:** This study aimed to expand on the research into tabletop role-play and social and emotional development, focusing on emotional resilience. 109 participants responded to a survey inquiring about their experiences with long-term, multiplayer tabletop role-play, including characters that were meaningful to them and six factors of emotional resilience: comfort with challenges, ability to problem solve, emotional expression, ability to handle criticism, social connection, and self-perception. Out of these 109 participants, three were chosen to expand on their answers from the survey and were interviewed. The participants included players, game masters, and those who did both, and included participants from diverse backgrounds. A phenomenological approach was taken while the data was coded for themes using NVivo software. 26 key themes were identified that linked tabletop role-play to the development of emotional resilience. The themes were put into four categories: trends found in characters, dramatic rehearsal, social development, and emotional development. The study found that these themes aligned with the three areas of skill development needed to grow emotional resilience (Barry 2018), as well as therapeutic powers of play (Pliske, Stauffer, and Werner-Lin 2021), and beneficial forces of group therapy (Yalom and Leszcz 2020). The results of this study can be applied to make home-games more safe, rewarding, and meaningful, but can also guide practitioners wishing to use therapeutically applied role-playing games in their practices.

**Keywords:** bleed, emotional growth, emotional resilience, therapeutic, role-playing games, social development, tabletop

**Luka Brave**
Oklahoma State University, USA
*luka.brave@okstate.edu*

## 1. INTRODUCTION

Play has the ability to guide, empower, and connect us. From schoolyard games to your weekly *Dungeons & Dragons* campaign, play shapes people's lives and can mold them for the better.

Schaefer and Peabody (2019) define play as having "freedom from the constraints of reality, positive affect, flexibility, intrinsic motivation, inner control, and a focus on the process of the activity rather than the outcome" (4). After about the age of 5, children shift from symbolic play to social play with cooperation and rules to follow, preparing them for tasks associated with adulthood (Drewes and Schaefer 2016). However, studies show that, though not as socially acceptable as games played by children, play performed by adults can develop close relationships, establish safety and security between players, signify acceptance, reduce conflict, encourage communication, induce flexible thinking, create excitement and positive affect, and relieve stress (Coe 2017; Van Vleet and Feeney 2015). Developmental psychologist Erik Erikson believed that play was our way of "mastering and adapting to the world" (Miller 2016, 144), one key tool in the quest to achieve healthy development as we age. Play can help us "understand what it [means] to be human" (Pliske, Stauffer, and

Werner-Lin 2021, 250), and help us build self-worth and confidence, experience catharsis, and develop needed social bonds (Bui, Vander Dussen, and Widera 2024; Pliske, Stauffer, and Werner-Lin 2021). When we take control of the stories we tell through play, we establish a newfound sense of security and empower ourselves (Ogawa 2004).

## 1.1 Benefits of Tabletop Role-Play

Tabletop role-playing games (TTRPGs) are a specific type of "games with rules" (Drewes and Schaefer 2016) where players work cooperatively to tell a story guided by the game's mechanics, which frequently have an element of randomness to them such as rolling dice or pulling cards from a deck. Though still a growing field, there is an increasing amount of evidence that playing tabletop RPGs can be beneficial to social and emotional health (Bowman 2013; Coe 2017; Connell 2023; Kilmer et al. 2023; Meriläinen 2012; Walsh and Linehan 2024), such as fostering personal development (Daniau 2016), increasing social skills (Henning et at. 2024; Varrette et al. 2023; Slaughter and Orth 2023; Orr, King, and McGonnell 2020), and decreasing social anxiety (Bowman 2013; Varrette et al. 2023).

Playing tabletop RPGs can be beneficial to learning as well. Research shows that being offered choices increases both performance and engagement (Patall et al. 2018; National Academies of Sciences, Engineering, and Medicine 2018) and that learning is enhanced by a connection to emotions and a social situation, as well as the presence of intrinsic motivation (National Academies of Sciences, Engineering, and Medicine 2018). The playfulness, meaningfulness, and attractiveness of games naturally enhances intrinsic motivation (Zainuddin et al. 2020) and helps learners to achieve the three basic needs of competence, autonomy, and relatedness (2020) which encourages players to stay engaged with the game over time (Bowman and Lieberoth 2018). In a 2012 study, 65% of role-players said they had learned new, useful things from RPGs, and over half of those surveyed said their problem-solving skills had increased (Meriläinen). Tabletop RPGs give players "an imaginative space in which they can practice and develop decision making, planning, social skills, conflict resolution, probabilistic thinking, goal development, and teamwork" (Coe 2017, 2855). The potential reasons for this learning range from Vygotsky's dialectical process of thesis, antithesis, and synthesis, where learners are challenged with new information and must integrate it into their existing worldview (Miller 2016), the observational learning explored in Social Learning Theory (Miller 2016), or exploring lessons through the metaphor of story and learning from indirect teaching (Pliske, Stauffer, and Werner-Lin 2021), as well as other avenues.

A large majority of role-players find important romantic and platonic relationships through role-play, with those relationships making up a significant part of their social lives (Meriläinen 2012) including meeting spouses through role-play (Bowman 2013). Tabletop RPGs help players connect with others socially (Adams 2013; Bowman 2013; Bowman and Lieberoth 2018; Coe 2017; Meriläinen 2012; Orr, King, and McGonnell 2020; Walsh and Linehan 2024), can help increase social competence and success (Henning et al. 2024; Meriläinen 2012; Orr, King, and McGonnell 2020), and can foster inclusion (Coe 2017), empathy (Meriläinen 2012), and moral involvement (Adams 2013; Haarman 2022). In fact, in order to be considered a "good gamer", one must embody prosocial traits such as cooperation, selflessness, and authenticity (Bowman and Lieberoth 2018).

The control and autonomy expressed over collaborative storytelling can also lead to emotional growth (Ogawa 2004). Role-play can lead to increased self-acceptance, self-efficacy, self-esteem, self-regulation, and confidence (Bui, Vander Dussen, and Widera 2024; Coe 2017; Walsh and Linehan 2024). Playing tabletop RPGs can help players learn to respond well under pressure in addition to helping them explore identity and understand themselves and their own emotions (Coe 2017) through their player-characters: roles enacted by players that are central to the narrative.

Blackstock (2016) reported that those who role-played through larp (live-action role-play) "found their characters acting as a mirror that gave them insight into their own real-life experiences and motivations" (8), and that larpers developed social confidence and conflict resolution skills, engaging in self-reflection after role-play experiences to relate events during play to their real lives (8). In a discussion of play therapy, Ray et al. said while being "provided an environment characterized by safety, acceptance, and therefore freedom to explore self" children undergoing play therapy are "empowered to build self-concept, personal responsibility, self-direction, self-acceptance, decision-making skills, sense of control, self-reliance, coping awareness and skills, internal source of evaluation, and trust" (2022, 137). The emotional impact that tabletop RPGs have on players may be in large part due to the 20 core therapeutic powers of play discussed by Pliske, Stauffer, and Werner-Lin (2021). They say that these core agents improve well-being and self-care by "facilitating communication ... fostering emotional wellness ... enhancing social relationships ... and increasing personal strengths" (244-245). There is evidence that playing tabletop RPGs helps foster healthy development as we age (Coe 2017).

## 1.2 The Therapeutic Elements of tabletop RPGs

With all this in mind, we can see why there are a growing number of practitioners using tabletop RPGs for the purpose of fostering wellness in psychiatric patients (Connell 2023; Kilmer et al. 2023; Varrette et al. 2023). While home-games can be powerful agents of growth and change, a shared story led by a trained professional can be even more impactful. Though there are a wide variety of elements that could feed into this phenomenon, the four that stand out in the literature are the concepts of good vs. evil and altruism in play, Doppelgangers or "close to home" characters, bleed, and dramatic rehearsal.

The fight between good and evil is one that may seem self-evident in many tabletop RPGs, but is also a studied phenomenon when it comes to its beneficial impact. Kawitzky (2020) says that the shared qualities of tabletop role-play and critical utopianism create situations that are "less about technical improvement, and more about players exercising their capacity for imaginative, potentially revolutionary, hoping" (135). Fine (2002) says that the "folk ideas" of the game and game master "capture the 'essence' of a society—its core beliefs and central values" (76). The folk ideas of many early tabletop RPGs like *Dungeons & Dragons* include, Fine argues, ideas such as unlimited good, unambiguous good vs. evil, and results that rely on courage more than the luck of good rolls. In a 2013 fantasy theme analysis, Adams found that good vs. evil was a strong component of *Dungeons & Dragons*, saying that "Players consistently demonstrated that they fought for what was morally right and saw each other in the role of a hero" (80) suggesting this met a need in the players to participate in moral involvement. Though the game and table never explicitly stated the player-characters (PCs) must perform only morally good deeds, "ultimately they sought to protect others, punish evil-doers, and restore what was right in their storyline" (81). Both hope for ourselves and our peers as well as altruism towards others are hugely therapeutic powers that aid in the healing process (Yalom and Leszcz 2020).

Erikson argued that children in the third stage of development model their behavior off of "ideal prototypes" such as "hero" (Miller 2016, 142), but will try out new social roles and behavior as they age. Many players choose to play characters who are in some way similar to themselves in order to connect more with the game and story, known as Doppelgangers or "close to home" characters (Bowman and Lieberoth 2018). In fact, some therapeutic practitioners urge their patients to create player-characters who are aspirational to them, such as in their ability to assert boundaries or be brave. This creates an alibi for patients to try out new behavior and practice behaviors they don't feel confident embodying in the real world (Connell 2023). In a 2017 study, Coe found that some of the reasons people play tabletop RPGs to begin with include "identity exploration," "real versus ideal self," and "understanding self through gaming" (2854) which included characters who were based off specific fragments of the player, such as a flaw they saw in themself, fully realized. Cross

(2012), who asserts she is one of many who discovered her transgender identity through role-playing games, said that role-playing "is an act of constant 'becoming' that allows for self-conscious ... social reconstruction" (72-73, emphasis removed) and that it is "an act of imaginative constitution, making and remaking" (82).

The key element of this transference from game to player and vice versa is bleed. Bleed is defined by the Vi åker jeep designer collective as being "experienced by a player when her thoughts and feelings are influenced by those of her character, or vice versa. With increasing bleed, the border between player and character becomes more and more transparent" such as when affection between players is manifested between the PCs as well (Vi åker jeep Role-Playing Collective n.d.). Some players may choose to "play for bleed" in order to be more emotionally connected to the story and characters. Due to the way the human brain is wired, we process stories and our real lives very similarly, using our same skills of theory of mind and mirroring when dealing with fiction (Bowman and Lieberoth 2018). Though steps can be taken to reduce bleed if unwanted, bleed and immersion are very natural when it comes to collaborative storytelling such as playing tabletop RPGs (Bowman and Lieberoth 2018; Lankoski and Järvelä 2012). Games that aim for bleed, known as bleed designs, "weaken the protective frame of play in order to explore powerful emotions" (Montola 2010, 155, emphasis removed). Players have reported bleed being invaluable for embracing learning experiences and fostering self-analysis (Bowman 2013), which can both be important for healing and growth (Yalom and Leszcz 2020). Bleed can lead to steering, or directing a character's actions for out-of-game reasons, which could "provide a space where [players] can approach challenging issues" (Walsh and Linehan 2024). Fantasy and pretend play, such as role-play, can be used by players to "act out their world or experiences via metaphor and symbols" while creative role-play "provided gradual exposure to emotions and metaphors for examining those emotions indirectly through a character or a performance" (Pliske, Stauffer, and Werner-Lin 2021, 251). Though our tendency towards noble stories of heroics and altruism can be gratifying for role-players, it is the bleed effect that allows us to internalize these stories, reflect on them, and ultimately utilize them for personal development and emotional growth.

While bleed is a delivery method for growth through role-play, the mechanism underlying this process within the role-play itself is what philosopher and educator John Dewey refers to as "dramatic rehearsal" (Dewey 1960). Haarman (2022) argues that role-play allows players to take on different traits and behaviors, requiring them to think from outside perspectives. This expands imagination, builds critical problem-solving skills, enhances empathy, and may ultimately lead to more civic behavior (Dewey 1960; Haarman 2022). If-game thinking describes when a player frequently fantasizes about their game, including conversations they may have in-character and potential character relationships (Bowman and Lieberoth 2018). Players frequently report finding this kind of immersion to be meaningful to them (2018). As a therapeutically applied RPG practitioner, Connell (2023) said that her patients are frequently helped by tabletop role-play's inclination towards perspective taking, practicing conversational skills, practicing behaviors such as expressing autonomy and enforcing boundaries without real world consequences, and being able to face potentially traumatic events with "agency, control, and support" (71-72), which helps to process the events and feelings surrounding them.

Dewey's concept of dramatic rehearsal—in which, through the act of deliberation, an individual considers various courses of action and plays them out through their conclusion along with any potential consequences, not weighing the utility of the outcome, but taking care to consider context and character (Dewey 1960; Hamington 2010)—is perfectly encapsulated in the social storytelling of multiplayer tabletop RPGs, especially those run in long-term campaigns. This method of role-play—getting to practice for emotional, social, and political situations—falls under Erikson's conception of *ritual*, as "provid[ing] ready-made solutions to the problems of everyday life" (Miller 2016, 145). These rituals, or dramatic rehearsal, add to our pool of potential responses when making decisions as we go about our days. Essentially, the things we practice during role-play get encoded into our long-term memory and are added to a mental database of communication and

behavior that we can utilize during future interactions (van Reemst, Fischer, and Zwirs 2016). According to group therapy practitioners, getting interpersonal feedback on social situations, gaining insight into your intent vs. actual impact on others, imitating others' behavior, and learning from others are all powerful healing agents that lead to growth and increased well-being (Yalom and Leszcz 2020).

### 1.3 Researching Emotional Resilience

The following study aimed to add to the research on the benefits of tabletop RPGs by examining the connection between long-term, multiplayer tabletop role-play and the development of emotional resilience. The study defines emotional resilience as "relative resistance to psychosocial risk experiences," separate from social competence, self-efficacy, or general positive mental health, and less tied to overall positive experiences than to interpersonal relationship patterns (Rutter 1999, 120). Emotional resilience is one of four aspects of personal resilience, along with physical, mental, and emotional, and deals with emotional range and flexibility, self-regulation, and positive relationships (McCraty and Childre 2010). Emotional resiliency can be broken into three categories: personal skills (including self-acceptance, dealing with uncertainty, coping with failure and success, challenging perfectionism, and problem-solving), social skills (including empathy, comfort in social interactions, and conversational skills), and life skills (including coping with unfairness, resolving personal conflicts, coping with stress, and pragmatism). The development of these skills typically leads to increased confidence, an enhanced ability to cope with stress, better problem-solving, improved relationships, developed social skills, and increased compassion for the self and others (Barry 2018).

Due to my own development of emotional resilience because of tabletop role-play, the study aimed to explore the questions of what effect tabletop RPGs specifically have on emotional resilience, and what aspects of tabletop role-play are associated with the growth of emotional resilience, putting the experiences of others in dialogue with my own.

## 2. METHODS

This study took a phenomenological approach to researching the question of tabletop role-play's relationship to emotional resilience.

### 2.1 Participants

For this study, 109 participants completed an online survey exploring their development of emotional resilience in relation to their tabletop role-play experiences. After the survey was closed and data was collected, three survey respondents were contacted for a follow-up interview. These three participants provided additional documentation about significant characters they had played as PCs or NPCs (non player-characters).

Participants were 18 years or older and American citizens. They had been playing multiplayer tabletop RPGs for at least 6 months and had played at least 3 sessions of role-play over the course of that time. Participants were a mix of players and game masters (GMs), with 54 identifying as players, 30 as GMs, and 25 filling both roles fairly equally. All participants self-reported as having experienced emotional or mental health challenges within the three years before beginning tabletop role-play. Participants came from diverse backgrounds and experiences, with 95 identifying as queer or LGBT, disabled, neurodivergent, a marginalized race or ethnicity, a religious minority, fat, or formerly homeless.

Participants were recruited from the general tabletop forum page of itch.io, an independent gaming website that hosts many tabletop RPGs for sale, and Tumblr, a blogging platform popular with tabletop fans, which was tagged with relevant hashtags such as "indie tabletop RPGs" and "TTRPG community." The link to the survey was also spread through word-of-mouth, with several participants expressing that they had shared it with their gaming circles.

## 2.2 The Survey

Survey questions were based on Rutter (1999), McCraty and Childre (2010), and Barry's (2018) work on emotional resilience, as well as adapted from clinical psychologist Madhuleena Roy Chowdhury's Emotional Resilience Self-Assessment tool (2019) and psychology professor and resiliency expert Al Siebert's Resiliency Quiz (2005). The questions were self-reflective and revolved around changes observed during the course of participants' tabletop role-play careers. Some questions were open-ended, while others prompted participants to reflect on whether certain qualities had improved, stayed the same, or gotten more challenging since beginning tabletop role-play. The major topics these questions revolved around were comfort with challenges, problem-solving ability, emotional expression, ability to handle criticism, social connection, and self-perception. Additional questions inquired into characters played by the participants that stood out as meaningful to them.

## 2.3 The Interviews

The three interviewees were chosen from the survey responses because their answers exemplified trends and themes that appeared in the data. Two were a player and GM who self-disclosed as being from a marginalized community, and one was equally a player and GM who did not identify as marginalized. In addition to the interview, they provided additional documentation beforehand that included descriptions and backstories of significant characters they had played. The interviews were semi-structured and designed to expand on common themes found in their survey responses.

## 2.4 Data Analysis

Once the survey was completed, an inductive method was taken to identify themes found in the data by coding it using NVivo software. Once major themes were identified, interviewees were chosen and contacted. Once the interviews were complete, they were transcribed and were also coded through NVivo, along with the additional character documentation. Themes were then put into categories based on common factors that aligned with the literature on emotional resilience.

## 2.5 Ethical Considerations

Participants were provided a participant information form before the survey began, explaining their right to exit the study at any time as well as what the study would entail. They had the option of not opting in to a follow-up interview and therefore remaining completely anonymous in the survey portion of the study. Interviewees were contacted through provided email addresses, and were given codenames on all documentation that was saved, such as interview notes and transcripts. All data from the study was stored on a protected, private computer, and interview recordings were deleted after being transcribed. Character names are redacted in selected quotations to protect the privacy of participants. Written permission was given by my table members to discuss their characters without using names in the discussion portion of the paper. The study passed Oklahoma State University's IRB process before being conducted.

## 2.6 Reflexivity Statement

I, as the researcher, have been playing tabletop RPGs for 8 years, from the classics to small indie games, as well as publishing my own systems for the last 2 years. I have played with groups that changed the trajectory of my

life for the better and made me lifelong friends, groups that caused many sleepless nights over strife and upset that ultimately broke up long-term relationships, and much in between. Despite this polarity of experiences, I believe that the growth I've achieved during this time has been in large part due to tabletop role-play, which is what led me to pursue graduate education and perform research in this field. I believe my insights into and connection with this community were beneficial to my ability to parse the data and draw meaningful conclusions, and both guided my choices in how to conduct this study.

## 3. FINDINGS

A total of 41 themes were identified in the data. The themes were referenced against the literature, some were pruned for lack of relevance and some combined, and then those that were supported by the literature and appeared in a fifth or more of the responses were organized into four categories (trends found in characters, dramatic rehearsal, social development, and emotional development). In addition to the 19 qualifying themes, six subthemes were included that appeared in less responses but fleshed out or supported a main theme, and one theme was included that did not appear in the survey responses but was spoken of extensively by all three interviewees.

For example, the following responses were found to fit an overall trend of participants using their characters as idealized selves to strive to emulate, and were thus coded as "role model":

> In a way, D—was wish fulfillment … If D—could let go of the crushing weight of everything, while also holding on to the things which truly mattered, I could as well. (Participant 17)

> Watching her find her voice and become an important player speaking up for what she knows is right. It makes me feel like maybe I can do that someday, too. (Participant 28)

> In general, I came to understand that she is who I wanted to be seen as, or at least a major part of that. (Participant 36)

Out of the total 109 participants, only 1 participant reported no growth in any category. After all responses were token-counted for indicating no change, negative change, or positive change, 77.8% of the total responses to the questions indicated mild to immense positive growth, or 487 of the total 626 question responses. This is compared to 13 total instances of negative change from 9 participants. Most participants clearly labeled their direction of change, with tokens including terms like "improved" or "deepened" for a positive change, "stayed the same" or "neutral" for no change, and "weakened" or "got worse" for negative changes. Questions that were skipped by participants were not included in this total count. Participants who were both players and GMs equally reported growth the most frequently, especially when it came to comfort with challenges, emotional expression, and self-perception.

Table 1 shows the categories along with their themes and subthemes from most to least prevalent in the responses, with subthemes marked with an asterisk and italicized.

**Table 1.** Themes and subthemes by category and prevalence.

| Category | Themes and Subthemes | Prevalence |
|---|---|---|
| Social development | | (298) |
| | Social connection | 88 |
| | Heightened expression | 74 |
| | Social skills | 46 |
| | *Empathy* | *20 |
| | *Improvisation* | *18 |
| | *Character different to player* | *17 |
| | Collaborative problem-solving | 32 |
| | Respect and safety | 3 |
| Emotional development | | (232) |
| | Self-esteem | 68 |
| | Creativity | 44 |
| | Emotional growth | 39 |
| | Confidence | 35 |
| | *Comfort with failure* | *14 |
| | Self-reflection | 32 |
| Dramatic rehearsal | | (179) |
| | Identity exploration | 41 |
| | Trauma exploration | 40 |
| | *Complicated romance* | *9 |
| | Emotion exploration | 36 |
| | Dramatic rehearsal | 30 |
| | Religious exploration | 23 |
| Trends found in characters | | (159) |
| | Close-to-home characters | 42 |
| | *Character as role model* | *12 |
| | Altruism | 32 |
| | Chosen family | 25 |
| | Difficult family | 25 |
| | Loss of family | 23 |

## 3.1 Trends Found in Characters

The first category was trends found in characters, which related most closely to research on good vs. evil (Adams 2013; Fine 2002; Kawitzky 2020), altruism (Adams 2013; Yalom and Leszcz 2020), and "close to home" characters (Bowman and Lieberoth 2018). The themes under this category were "close to home characters" with the subtheme of "character as role model", "difficult family", "loss of family", "chosen family", and "altruism."

The most common theme in this category was "close to home" characters, with 42 participants discussing how playing characters who were in some way similar to themselves was beneficial both to their relationship with their character and themselves. Some participants reported this allowed them to accept parts of themselves they were unable to before, or develop self-care, such as Participant 52, who said, "especially as I put a lot of pieces myself into my characters and I care for them a \*lot\* (so by extension, I care for myself)" (Participant 52).

There was a subset of participants who fell into this theme who specifically indicated using their characters as role models, either intentionally creating them with aspirational qualities, or growing to appreciate their qualities in ways they had not before. Participant 54 explained, "She exemplifies the traits that I want to inhabit in my own life – selflessness, kindness, empathy, and a willingness to do anything for the people she loves" (Participant 54).

There were two common trends in the backstories of the characters participants considered most meaningful to themselves. 25 participants included that their characters had grown up with difficult family, from messy to abusive, such as Participant 62, whose character, "grew up in a broken home, telling lies to keep the peace between abusive parents" (Participant 62).

There was overlap between these characters and the 23 characters who had experienced loss of family members, such as Participant 5, who said, "She was a scorned and emotional warrior in her flock due to the death of her important father, who wanted to prevent the upcoming war between her flock and another" (Participant 5). Though the characters who had lost family members included family that was both biological and chosen or adoptive, those that indicated messy or abusive families were far more often about their characters' biological family members.

A similar number of participants (25) indicated their characters found a chosen family either in their backstories or over the course of the campaign. Participant 25 said of their campaign, "Particularly what stuck with me was the sisterly relationship she formed with another PC, which actually brought me and the other player extremely close as friends" (Participant 54).

Finally, 32 participants indicated that embodying altruism and storylines of fighting for good were important to their gameplay. Participant 2 said of their character, "She was also based on the idea of militant decency. The idea that you can look at the world and its flaws and injustices and be intensely ANGRY and turn that into energy to do the right thing and make the world a better place" (Participant 2).

## 3.2 Dramatic Rehearsal

The second category was dramatic rehearsal, which most closely related to research on dramatic rehearsal (Dewey 1960; Haarman 2022; Hamington 2010) and bleed (Bowman and Lieberoth 2018; Lankoski and Järvelä 2012). The themes were: dramatic rehearsal, identity exploration, religious exploration, trauma exploration, which included the subtheme of complicated romance, and emotion exploration.

30 participants referenced the idea of dramatic rehearsal rather directly, such as Participant 62, who said, "I've always been a problem solver, but being able to adapt to playing other characters allows me to be able to shift my point of view to help me see problems from different angles" (Participant 62). These partici-

pants explained that perspective taking and practice for future social situations was a key benefit of tabletop role-play for them.

Many participants used their characters and campaigns to explore charged topics such as identity, religion, stigmatized or challenging emotions, and trauma. A subset of these responses (17 participants) indicated that playing characters of a different sexuality or gender to how they originally identified allowed them to come to terms with their own queerness, including one participant who named herself after a meaningful female character she'd played. This included Participant 27, who said,

> While G— originally began the game identifying as male (like I did), I used their shape changing powers to explore my gender further. G— eventually settled into assuming primarily female forms, and through this I was able to build up the courage to come out to my fellow players- including my brother. G— was a bit of a loose cannon but through her I was able to show that being a different gender wouldn't change who I was. (Participant 27)

Other identities explored by participants included disability, neurodivergence, and racial identity.

There was also a selection of participants who used their characters to explore religion, either damaging religious experiences such as cults, or, like Participant 11, playing religious characters such as clerics and paladins in order to explore a healthier relationship to faith: "I am not a person of faith. C— is, and I wasn't expecting her to be, or to help me explore and heal from some experiences I had around faith as a young disabled person" (Participant 11).

Nearly on par with exploring identity, many participants (40) explored themes of trauma with their characters. Some of these depictions of trauma were very fantastical and prototypical examples of a *D&D* adventuring party. Others explored grounded trauma in a fantastical way, such as Interviewee "S", who gave her characters homebrew mechanics for the magical effects of abuse from caregivers. Others still played through situations of neglect, abuse, and other very real-life trauma. This helped some participants reflect on, process, and move on from past experiences. Others had situations they were in currently were reframed by the story and the other characters' and players' reactions reflecting them back in a new context. A small but significant portion of these responses dealt with complicated, toxic, or abusive romantic relationships:

> I have previously experienced manipulation in a romantic relationship. Being able to play through the aftermath of leaving an abusive relationship helped me work through my own emotions from my past. (Participant 56)

> Encountering fictional situations with my character in positions that (unbeknownst to the GM) mirrored some of the emotionally abusive situations I was in myself at the time gave me a way to see those situations for what they were, and to practice getting out of them in a low-stakes, not-real-time setting with some added emotional distance. (Participant 73)

Finally, a significant portion of participants used their characters as tools for exploring particular challenging, painful, or stigmatized emotions, such as Participant 8.

> His story is largely about moving beyond bereavement, about learning to accept the presence of grief within your life, and to understand that life still goes on even after earth-shattering events ... Simply put, M— is an exploration of my grief over losing people. (Participant 8)

Emotions that participants explored included grief, horror, desperation, protectiveness, desire, fear, empathy, loneliness, obsession, and compassion, however, by far the most common emotion for participants to explore with their characters was anger. Many participants discussed having repressed or been disallowed anger that they were able to inhabit for the first time with their characters.

> And you know, a very common trope in this roleplaying game is that a person goes through their first change to become a werewolf when they encounter something that fills them with so much rage that it inspires them to action. And one of the things with this character that I wanted to do was to reflect on my own experiences with rage, because, as somebody that was bullied, like, in the handful of places where I did stand up for myself, it turned into something where every fucker in the room was coming to stop me. And the bully was, of course, let go, and I was the one that got in trouble and, you know … So, I wanted to make explorations with a character that had always denied themselves their own rage. (Interviewee "M")

**Figure 1.** Interviewee's character experiencing magically-induced rage
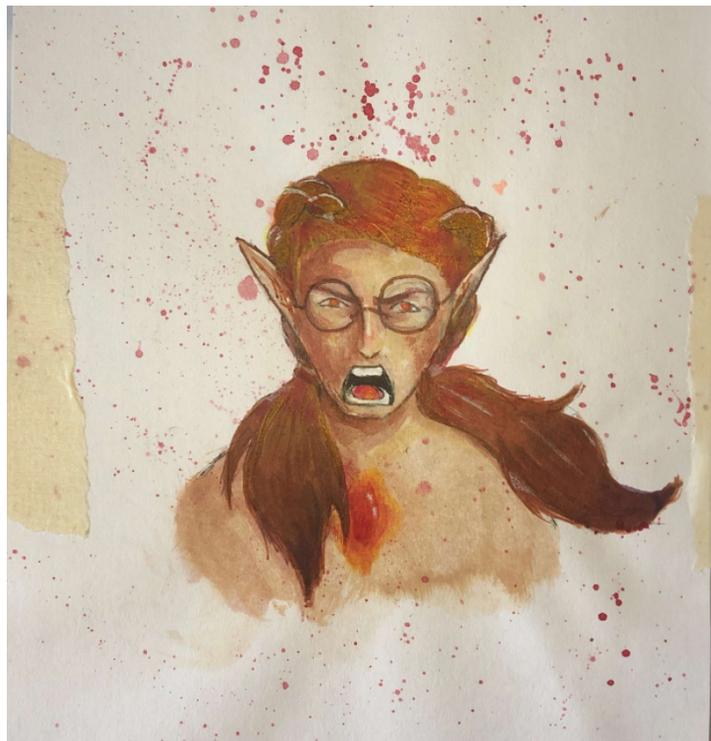


### 3.3 Social Development

The third category was social development, which was focused around the growth in Barry's (2018) social skills and life skills necessary for emotional resilience, as well as growth goals for therapeutically applied RPG and group therapy practitioners (Connell 2023; Kilmer et al. 2023; Yalom and Leszcz 2020). This category included themes of social connection; social skills and its subthemes of improvisation, empathy, and character different to player; "heightened expression; collaborative problem solving; and respect and safety.

The theme of players finding social connection through tabletop RPGs was by far the most prevalent, with 88 participants of the total 109 reporting that they found more, better, or deeper connections with others through role-play. One stated, "I've always been a bit of an introvert, but when you and your players bleed and cry together, we form an almost unbreakable bond." (Interviewee "M")

It seems likely that this increased connection was in part due to role-play helping participants develop social skills. In fact, six of the participants indicating a growth in this area used the exact phrase "social skills" for what had improved due to role-play. Many participants indicated that they now felt more comfortable speaking to others, with 18 participants referring to this skill as improvisation. One mentioned:

> TTRPGs really exercise my skills in improvisation – maybe I have a plan but the players have gone somewhere I didn't expect, so I come up with something on the spot. I can't retcon because that makes for an inconsistent/less enjoyable session, so I [know] to be able to roll with the punches and commit to whatever I've already got going on. This is really handy in other parts of my life as well, such as work. (Participant 95)

Another stated, "I used to have severe social anxiety, fear of approaching people and talking to strangers, but getting to 'practice' all that helped me overcome it. (Participant 58)

Participants who indicated more and better connection with others explained that role-play had increased their empathy and compassion for others, allowing them to connect deeper with more and more diverse people. One stated, "This has prompted me to be a better listener and accepting of others with differing experiences to [my] own, which makes us all better rounded." (Participant 65)

Some indicated that playing characters who were different to them is what helped them see other points of view and increase their compassion. One stated, "When I pretend to be my character, I have to sometimes make hard choices that I would never make in real life but my character does. That dissonance has made me a better person, I think" (Participant 104).

Many participants (74) also indicated that role-play increased their ability to express themselves, either when it came to communication or talking about their emotions. This was the second most prevalent theme amongst participants. One participant stated:

> I think that I have become more able to have emotionally difficult conversations since starting role-playing. I have always struggled with things like confrontation and just generally difficult conversations, but through roleplay and having a safe environment to act these situations out, I feel like I have been able to better handle these types of conversations ... This is probably the number one thing that has improved since starting tabletop roleplay. (Participant 54)

One specific skill that was brought up in the responses was that of collaborative problem solving. 32 participants explained that while before, they would trend towards tackling challenges alone, if at all, after role-play, they consulted friends on what to do and how to approach challenging situations. These participants indicated going to their "teams," often fellow players, at various stages in tackling a problem to get advice or feedback, such as Participant 52, who said,

> I am much more creative with solutions and able to actually ask for help in more situations ... to turn to my team and crowdsource solutions and then suggest a plan (when before I was more likely to internalize, panic, and then put it off until I couldn't anymore). (Participant 52)

Though not present in the survey responses, a key topic of conversation in all three of the interviews conducted was the matter of respect. All three had experienced frustrating, upsetting, or traumatizing experiences at tables in the past, despite their obvious emotional growth through tabletop role-play at the time of the study. When asked about these experiences in comparison to their meaningful and healing experiences with role-play, the answer always came down to respect.

"I enforce a pretty strict boundary of trust, communication, [and] respect between the players and the storytellers," said Interviewee "M" (it/she), who had experienced disrespect and bigotry at tables past. She discussed having to carve out safe spaces where there had been none in early decades of the tabletop RPG community. The use of safety tools (tools designed to navigate player consent and comfort during role-play) was something also brought up by Interviewee "V" (he/him), who used safety tools "always." He preferred a traffic light system—using red, yellow, and green cards to indicate how comfortable someone was with the current scene. "If something starts to get a little bit hazy, they shift to yellow, and we double check real quick or we start to shift away. And I always hope to avoid red having to be used at all. But sometimes it has come out before."

In contrast, Interviewee "M" utilized consent forms with various topics to be cautious about or avoid in order to ensure player comfort during horror campaigns. Having come from a decades-long career in tabletop role-play, it said, "I guess that what a lot of people take for granted with tabletop gaming is that things are currently inherently safer than they used to be...I think that a lot of people are starting to underestimate the importance of tabletop safety tools." This was reflected in the experiences of Interviewee "S" (she/they), who played for several years with a DM who would not listen to player requests for lower-intensity play. "It was way too stressful. There were times where I had to physically step outside, because I was, like, shaking and sobbing." Utilizing safety tools and respecting the boundaries and consent of all those at the table not only leads to better role-play experiences and closer bonds, but also avoids harming players and even possibly inducing trauma.

## 3.4 Emotional Development

The fourth and final category was emotional development. This revolved around Barry's (2018) personal skills, in addition to the aftereffects of growth in emotional resilience. Like the previous category, it included goals from TA-RPGs and group therapy. The final category included the themes of creativity, confidence and its subtheme of comfort with failure, self-reflection, self-esteem, and emotional growth.

A high number of participants (44) indicated that tabletop RPGs made them more creative, and motivated them to renew lost creativity or take up new creative hobbies. This included drawing, painting, creative writing, storytelling, homebrew, and game design. One participant stated, " I suddenly had a flood of creativity and motivation to create art where in years previous there had been none." (Participant 6)

Participants said that after tabletop role-play, they felt more confident. Some indicated this was due to increased social skills, and others said this feeling was directly influenced by their characters, such as Participant 37, who said, "Q— was outgoing, funny, loud and enjoyable to play, and she was so different from me that falling into that character helped me feel better about myself" (Participant 37).

A smaller subset of participants reported that part of this increased confidence was specifically that they felt more comfortable with failure or the potential for it. They were less fearful, more inclined to take risks, and felt better about being corrected by others. One participant states, "A lot of my anxiety about doing something wrong or looking silly/stupid has gone away, since I've had space to express myself and fail safely" (Participant 14).

Participants also indicated that role-play, and especially inhabiting their characters, gave them a way to reflect on themselves, leading to acceptance, understanding, and change. One participant shared, "I feel more in tune with who I am as a person, because weirdly, spending time pretending to be other people has let me figure out myself in a more precise way" (Participant 2).

For a lot of participants, this, as well as other aspects of role-play, led to them developing better self-esteem. Participants criticized themselves less, learned to appreciate aspects of themselves they saw reflected in their characters, grew into their identities, and developed self-love. One participant stated, "In incorporating various personality traits into my characters, I've really learned to love parts of myself I used to be afraid of" (Participant 7).

Overall, this led to a lot of general emotional growth for participants. They reported being more comfortable in themselves, being kinder, being better able to handle criticism, having a better understanding of their own feelings, feeling hopeful about the future, being more tolerant of stress, being more open and mature, rejecting people-pleasing, communicating about boundaries, and being more comfortable with vulnerability. One participant said:

> I got a grasp on my depression during the period I played her. I watched her accept herself. I played her as she actively chose to behave differently, as she became hopeful. It was what I needed at the time. To see that someone achingly sad could find contentment. (Participant 44)

Another participant stated, "Playing E— was really just speedrunning healing, haha." (Participant 52)

## 4. DISCUSSION

The findings of this study align with research on the therapeutic powers of play (Pliske, Stauffer, and Werner-Lin 2021) and the benefits tabletop RPGs have on social and emotional health (Adams 2013; Bowman 2013; Coe 2017; Connell 2023; Kilmer et al. 2023; Meriläinen 2012; Walsh and Linehan 2024). The themes revealed in the data mirrored the benefits of group therapy (Yalom and Leszcz 2020). Participants reported many areas of growth that Barry (2018) discusses as key elements of emotional resilience.

### 4.1 Therapeutic Forces

Pliske, Stauffer, and Werner-Lin (2021) discuss 20 core forces that make play therapeutic and can improve well-being and aid healing. 13 of these forces appeared as themes or within themes in the findings. These include: heightened abilities of self-expression, access to the unconscious, indirect learning, abreaction (recreating traumatic events through play), fostering positive emotions, stress management, increased attachment to others, heightened social competence, increased empathy, creative problem-solving, moral development, increased self-esteem, and overall increased resiliency. Interestingly, catharsis, which they list as another core force and is listed as a therapeutic power of group therapy (Yalom and Leszcz 2020), was not a major theme in the data, with only six participants mentioning catharsis as a benefit of tabletop RPGs.

However, several themes do align with Yalom and Leszcz's (2020) benefits of group therapy. Increased emotional intelligence was discussed by many participants, along with altruism both within the game and between players, mirroring of family dynamics and structures (especially between PCs), learning new socialization techniques, healing from seeing someone else with similar challenges deal with issues (known as vicarious or spectator therapy), role-play giving players a space to experiment with new behavior, interpersonal learning, and what's known as the corrective emotional experience, where players were re-exposed to emotional situations they weren't able to handle in the past, but now under better and safer circumstances.

These forces and beneficial effects of role-play can lead to what McGonigal (2015) discusses as *post-traumatic growth*. She explains that those who've undergone a traumatic event sometimes come out the other side stronger and healthier. The five most common things those who've experienced post-traumatic growth say is that they're no longer afraid to pursue happiness over other priorities, that they're closer to their loved ones, that they understand themselves better, that they have a new sense of meaning and purpose, and that they're more focused on their own goals and dreams (5). However, she says that those who take on a big challenge (for instance, dedicating to a regular, long-term tabletop RPG campaign and all the in-game challenges and emotions that come with it) can also experience this growth, whether they've undergone a trauma or not.

This is known as *post-ecstatic growth*, and may be even more relevant to the emotional growth seen in those who play tabletop RPGs long-term. This also could align with the finding that those who both played and GMed equally were more comfortable with challenges, had higher instances of heightened emotional expression, and better self-perception than those who mainly did one or the other. They were experiencing the benefits of play and group cohesion along with the benefits of managing, planning for, and running a big project. While many indie tabletop RPGs place less responsibility on the GM than *D&D* or *Pathfinder*, there still are elements of responsibility for the emotional well-being of the group, whether it be planning events they will enjoy, creating enticing NPCs based on the players' interests, or encouraging the use of safety tools. There are also different types of affirmation between making choices the table enjoys as a PC and running a story that the players find meaning in.

## 4.2 Emotional Resilience

Barry (2018) describes emotional resilience as our ability to cope with adversity, with the development of resiliency skills leading to improved mental health, increased confidence, increased ability to cope with stress, better problem solving, better relationships, increased social skills, increased compassion, and a developed sense of pragmatism. The themes found in the data very much support that long-term, multiplayer tabletop role-play increases emotional resilience and the development of resiliency skills in players.

He identifies three categories of skills that all feed into emotional resiliency. Of these, the themes echo that tabletop RPGs develop life skills such as being able to resolve conflicts in a healthier way and coping with stress; social skills such as empathy, comfort with communication, and better social interactions; and personal skills such as self-acceptance, dealing with anxiety, coping with failure, putting an end to catastrophizing, and problem-solving.

That said, there are factors of tabletop role-play that could weaken the development of these skills or the emotional benefits as well. Discussed by Bowman (2013), there are many potential social pitfalls when it comes to role-play groups, such as strife between players when bleed happens over conflicts in or out of game; antisocial behaviors like leaning on the excuse of "It's what my character would do" while causing upset with in-game choices; cutthroat and backstabbing behaviors between PCs, as well as secret-keeping and scheming against fellow party members; an over-focus on rules and "winning" the game; and from the GM side, imposing narratives on the PCs without their cooperation, being overprotective of NPCs, having NPCs solve important problems for the players, and lack of direction in sandbox-style games.

The interviewees shared similar experiences of lack of trust and respect at tables, bad behavior from players ruining everyone else's experiences, and seemingly malicious GMs causing trauma reactions in players week after week. And yet, these participants continued coming back to these games and still all demonstrated great amounts of love for and growth because of tabletop RPGs. In the same way one friendship can be traumatizing without lessening the human need for close friendship, having bad experiences at the table does not erase that tabletop RPGs fulfill very human needs of connection, care, heroics, extraordinary experiences, and creativity (Adams 2013; Coe 2017; Orr 2020; Walsh and Linehan 2024).

## 4.3 Limitations

The method of recruiting participants very possibly led to a higher instance of participants from marginalized communities, and who lean towards telling more narrative-heavy stories. The results may have looked different if more recruitment was done at places like gaming stores, which tend to draw a different audience, or in circles that prioritize crunchy and combat-focused games. Recruitment was done through channels where people who were still currently playing tabletop RPGs were most likely to see the posts. This likely skewed

the data towards people who were currently having positive experiences with tabletop RPGs, or had not fully quit the hobby. The high percentage of positive responses may not hold in the face of a different population of respondents, even if the themes stayed consistent. Finally, there is also a version of this study that traded the large number of survey responses for more numerous in-depth interviews. As respect and safety was a theme that only appeared in the interviews, different themes might have come from this method.

**4.4 Future Research**

There is still more that needs to be understood about the potential therapeutic benefits of tabletop RPGs. Are there specific games that are more or most suited to developing emotional growth in players? Are the potential social pitfalls of role-play (Bowman 2013) a uniquely harmful threat to players who've undergone "small T" or Type II trauma (Connell 2023; Ogawa 2004)? When should bleed be harnessed for growth and when is it detrimental? Which safety tools are most beneficial in which circumstances, and when could an overuse of safety tools get in the way of meaningful, impactful experiences (Montola 2010)? These are all questions future research could seek to answer in order to develop the literature on the benefits of tabletop RPGs.

**5. CONCLUSION**

Tabletop role-play can be a powerful force for good. It allows players to come together in moments of shared creativity, encouraging moving storytelling that explores conflict and hardship, identity and experience, and connection and emotionality. Players can find growth and healing through these shared narratives, learning vital skills to improve their lives and their relationships with others. Over time, tabletop role-play can foster emotional resilience in players, even in the face of past damaging experiences with the hobby. We humans crave the play, connection, and meaning-making that comes from tabletop RPGs. This study explored the effect tabletop role-play has on emotional resilience, identifying 26 key themes that highlight how tabletop RPGs can help us grow. My hope is that more research is done into the benefits of role-play, allowing players to make informed choices on how to get the most out of their games, and giving therapeutically applied RPG practitioners even more of a leg-up when it comes to helping their clients. Whether or not tabletop RPGs can change the world, they can certainly change our worlds. How can your next game help you grow?

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## APPENDIX A: Survey Questions

1. Are you 18 years of age or older?
2. Are you a United States citizen?
3. Have you played a multiplayer tabletop roleplaying game?
   - Multiplayer tabletop RPGs include pen and paper roleplaying games like D*ungeons & Dragons* where there are either multiple players and no Game Master (person running the game) or one Game Master and multiple players.
4. Have you been playing multiplayer tabletop RPGs for 6 months or longer?
5. Have you played three or more roleplay sessions?
   - Role-play includes when you are acting as your character, and does not include Session 0s or character creation sessions.
6. Did you experience mental or emotional struggles within three years of beginning tabletop roleplay?
   - Challenges might include mental health conditions, disabilities that restrict daily life, traumatic experiences, and/or marginalization

7.  After reading the participant information form, do you consent to taking part in this study?
8.  Will you answer the prompts honestly, to your level of comfort?
    - You do not have to share details that make you upset, or that would be identifiable to those who know you. You are able to answer with little or more detail, up to your comfort level
9.  Do you consider yourself a part of a marginalized community?
    - Marginalized identities may include holding queer identities, being disabled, being a person of color, being of a minority religion, or others
10. **OPTIONAL:** What marginalized community or communities do you consider yourself to be a part of?
    - You may be broad or specific, to your level of comfort
11. Are you more often ...
    - A player
    - A game master
    - Both equally

## PART 1: The Survey Begins

12. How do you feel that you've changed since starting tabletop roleplay, if at all?

## PART 2: Finish the Sentence

Consider the prompt, and then finish the sentence. Has the topic stayed the same, improved, or gotten more challenging for you?

13. Since starting tabletop roleplay, my comfort level when taking on challenges has...
14. Since starting tabletop roleplay, my ability to find solutions to problems has...
15. When approaching challenges, my strategy is now...
16. Since starting tabletop roleplay, my ability to express challenging emotions has...
17. Since starting tabletop roleplay, my ability to handle criticism has...
18. Since starting tabletop roleplay, my connection to other people has...
19. Since starting tabletop roleplay, my perception of myself has...

## PART 3: Characters

20. When designing my characters, I tend to...
21. Please provide a one-paragraph description of your most meaningful character and their backstory
    - How you define or decide "most meaningful" is up to you. The character does not have to be the one you've played the longest, only the one that stands out to you the most
22. Why is this character the most meaningful to you?

## PART 4: Interview

23. Would you be interested in taking part in an optional follow-up interview on this same topic?
24. Do you consent to your audio being recorded during the interview?
    - Audio will be recorded through Zoom in order for a transcript of the interview to be made. The recording will be stored on a password-protected private computer, and deleted within a week of the interview taking place.

25. Please provide the best email to contact you for an interview
    • Only three participants will be contacted for a follow-up interview. Participants will be contacted after the survey is closed and all data is collected on April 12th.

**Luka Brave** is a graduate student in the Rhetoric and Writing Studies and Educational Psychology programs at Oklahoma State University. His work is focused on games, especially games for applied purposes such as education and therapeutic use. Blending a history of disability advocacy, social work, and game development into one academic specialty, Brave's long-term goal is to research and develop games for use as mental health, disability, and therapy aids. He has been a tabletop RPG player and GM for eight years and has published over 25 tabletop RPGs in the last two and a half years. His current big project is a multiplayer campaign-length tabletop RPG that helps players heal from complex trauma.

# Bleed in Dungeons & Dragons:
## A Study on the Impact of Personality Design and Character Similarity

**Abstract:** Recently, *Dungeons & Dragons* (*D&D*) has surged in popularity. Particularly during COVID-19, more people started playing *D&D*, which has been shown to have a positive effect on the players' wellbeing, underscoring the potential mental health benefits of the game. These effects of role-playing on the players' real-life mental state can be explained by emotions, behavior and beliefs *bleeding* from the player into their character and vice versa.

While existing research has explored how physical customization possibilities of game characters can affect players or strengthen the bond between players and their characters, little attention has been paid to how different character personality designs affect the player. Moreover, there is a notable lack of research examining how bleed develops over an extended period of play. This study addresses these gaps by developing and testing a conceptual model for bleed and examining how different designs for *D&D* characters (similar, dissimilar, idealized self in terms of personality) affect the player over an extended period through a qualitative, exploratory experiment. Novel measures for bleed were developed and tested for this purpose.

Furthermore, a Myers-Briggs-based, gamified personality test was used as a simplified way of operationalizing similarity between a player and their character. Findings indicate that playing a character similar in personality to the player fosters greater bleed-in than bleed-out, while a character representing desired traits evokes both bleed-in and bleed-out. Notably, playing a dissimilar character induces more bleed-out than playing a similar character. This study provides further insights into the complex nature of bleed and paves the way for future research, with the aim of discovering how RPGs like *D&D* and character creation can be leveraged to impact one's self-development.

**Keywords:** role-playing games, *Dungeons & Dragons*, bleed, self-development, personality design

**Maxime Scholte Albers**
University of Amsterdam, The Netherlands
*m.p.m.scholtealbers@uva.nl*

**Jan de Wit**
Tilburg University, The Netherlands
*J.M.S.deWit@tilburguniversity.edu*

## 1. INTRODUCTION

The relationship between players and their characters is essential to the experience of role-playing games (RPGs), with characters serving as the medium through which players extend their presence and agency into the game (Banks et al. 2019; Bowman et al. 2016; Dimas et al. 2011). Prior research has predominantly examined the impact of physical character customization on players' self-concept, body ownership, and presence (Waltemate et al. 2018; Yee & Bailenson 2007). However, little is known about how a character's personality design and customization options affect the player. This study aims to fill that gap by focusing on a RPG with extensive personality customization options: *Dungeons & Dragons* (*D&D*).

Originally introduced as a tabletop role-playing game (TTRPG) in 1974, *D&D* has sustained its popularity over the years (Adams 2013). In this game, players navigate their self-made characters through adventures crafted by another player who serves as the "Dungeon Master" (DM). Through collaborative sto-

rytelling, players are both audience and author, significantly influencing and affecting the narrative. Character design in *D&D* offers a wide range of customization options, from arbitrary choices like clothing and hair color to impactful decisions affecting the game (such as race and class) and narrative (such as ethical beliefs and personality).

In *D&D*, through the imaginary and active nature of the game, the player actively uses their cognitive capacity to immerse themselves in the game and into the character. Through acting, the player gets to pretend they are the character, resulting in characters posing as a medium to experience events and emotions (N.D. Bowman et al. 2016). Because of the active use of a player's cognitive capacities and the constant switching between the real world and fictional world in a process of "metareflection" (Levin 2020), some aspects inevitably remain rooted in real-life experiences, blurring the lines between player and character.

How players are affected by the experiences of their characters (e.g., emotions, behavior, beliefs) and vice versa is called bleed (Hugaas 2024; S. L. Bowman 2022; Vi Åker Jeep, n.d.). Based on the notion of bleed, a character can serve as an explorative medium, allowing players to express and experiment with different aspects of their identity. Identity is considered a multifaceted construct, where different aspects of a person's identity become dominant in various social settings (Hugaas 2024). This exploration of identity could lay the groundwork for the positive therapeutic outcomes of playing *D&D* that have been observed (e.g., S. L. Bowman 2012; Yuliawati et al. 2024), with different character designs (i.e., more or less similar to the player) enabling the player to explore various versions of themselves (S. L. Bowman 2010; Kapitány et al. 2022; Kilmer et al. 2023).

Previous research has explored bleed primarily through qualitative methods, revealing insights into how players perceive and experience this phenomenon (e.g., Walsh & Linehan 2024; S.L. Bowman 2013). There is a notable lack of research examining how bleed develops over an extended period of play, and how much time one would have to spend with a character for bleed effects to occur. Each player's unique engagement with their character results in diverse player-character relationships, according to their motivations and immersion modes (S.L. Bowman & Schrier 2018). This dynamic interplay matures as the character undergoes development, and players invest more time in character portrayal.

The aim of this study is twofold: (1) to study the impact of different character designs, in terms of similarity between player and character, on bleed effects, and (2) to provide an overview of how and through which mechanisms bleed develops after an extended period of play. This is done using a mixed research design, where participants reflect on their experiences after several months of playing a newly created character in *D&D*, combining qualitative and quantitative methods to address the following research question:

1. How does bleed develop between player and character in an online setting of Dungeons & Dragons over an extended period of time, and how does a character's degree of similarity to the player affect this development?

## 2. BACKGROUND

### 2.1 Dungeons & Dragons in an online setting

*Dungeons & Dragons* (*D&D*), originally intended for in-person tabletop play, has recently also transitioned to online platforms (Hedge 2021). These web-based adaptations offer a myriad of playstyles, encompassing text-based, audio-only, and audiovisual formats, each offering different experiences. The frequency and composition of gameplay groups, whether consistent or ever-changing, further contribute to the versatility of online *D&D*.

This research focuses on the online *D&D* format, often referred to as "West Marches." Distinguished from traditional *D&D* campaigns, West Marches embodies a player-driven, community-based approach

(Lumpkin 2019). In this format, players have the option to assume the roles of both players and DMs, resulting in a lack of predefined player groups and overarching narratives. Frequent game sessions, typically self-contained, are woven into a shared game world within the online community. West Marches exemplifies sandbox-style gameplay, affording players the agency to select interactions and storylines freely.

Another difference from traditional offline *D&D* formats stems from the additional opportunities for immersion. Text-based channels are made to represent various in-game locations (e.g., forests or taverns), facilitating role-play between players. Unlike traditional sessions that require planning and organization, text-based role-play can be initiated spontaneously with any two (or more) willing players. This accessibility provides players with a continuous avenue to immerse themselves in the story world and their characters.

## 2.2 Character design in Dungeons & Dragons

One of the unique aspects of engaging in RPGs such as *D&D* is the ability for the player to shape their character in appearance as well as personality and underlying values. Sarah Lynne Bowman (2010; Chapter 7) identifies different types of relationships between the player's own identity and their character: (1) a Doppelganger that is very strongly related to their sense of self; (2) the Devoid Self that can be seen as a version of themselves that is lacking something they do possess in real life; (3) the Augmented Self as a version of themselves with an added quality (e.g., superpower); (4) the Fragmented Self that has a part of themselves accentuated or exaggerated; (5) the Repressed Self that represents one's inner child and desire to be carefree; (6) the Idealized Self with traits that a player wishes to have; (7) the Oppositional Self as the inverse of the player's personality; (8) the Experimental Self as a way for the player to challenge themselves with difficult-to-role-play characters; and (9) the Taboo Self where the character is used to open the floor to discuss topics or concepts that are considered taboo in real life.

We postulate that these different relationships between a player and their character result in different experiences and reflections while role-playing the character archetypes. To explore these player-character relationships and their effects in the current study, we have invited players to design characters that are likely to result in different relationships. We expect that characters that closely resemble personality characteristics of the player result in Doppelganger-type relationships; characters that are very different from the player, in Oppositional Self-type relationships; and characters that possess personality traits that the player would like to have in addition to the personality traits they do have, in Idealized Self-type relationships.

Although participants in our study are instructed to create a character following specific traits, Sarah Lynne Bowman (2010; Chapter 7) indicates that it takes time for the character and its relationship with the player to develop. After the initial creation, or *Genesis* of the character, the *Development* stage comprises the player putting further thought into the character. This is followed by the *Interaction* of the character with the fictional world and other characters, where concrete decisions need to be made on behalf of the character, which exposes further character traits. Finally, after some time spent role-playing the character, there is a sense of *Realization* where the player has developed an in-depth understanding of the character. Because these later stages of player-character relationship formation are likely to play a substantial part in the effects that this relationship ends up having on the player, it is important to include the different stages when studying these effects, for example by conducting a follow-up session after players have had a chance to develop their characters in naturalistic gameplay.

## 2.3 Immersion

Narratives can take us on an emotional journey where we experience emotions with and for a character (Slater et al. 2014). This can manifest in behaviors such as laughing out loud or crying when engaging with media. Through words and images, we feel the agony and share the joy of whoever's viewpoint we are taking on.

Previous academic endeavors concerning traditional narratives explain that stories take us out of our everyday lives and "transport" us into a fictional world. Immersion is a fundamental aspect of transportation where the person taking in the narrative mentally leaves behind the real world in favor of the fictional one (Irimiás et al. 2021). In her book *Hamlet on the Holodeck*, Murray describes immersion as follows:

> Immersion is a metaphorical term derived from the physical experience of being submerged in water. We seek the same feeling from a psychologically immersive experience that we do from a plunge in the ocean or swimming pool: the sensation of being surrounded by a completely other reality, as different as water is from air, that takes over all of our attention, our whole perceptual apparatus. (1997, p. 98)

This perspective primarily stems from studies on traditional media. Immersion into RPGs differs in certain ways, mainly in the sense that this involves an active, performative way of transitioning from one's own identity into another (Bowman 2012). The transitioning into and out of the imaginary mindset of the character has respectively been called en-roling and de-roling (Burrell 2023; Gualeni & Vella 2020). While most theories see the transfer as instantaneous, Gualeni and Vella (2020) note that this is a complex process. Players, in the example of *D&D*, need to meet a threshold of basic knowledge of the game, such as how to navigate their character sheet or that the embodiment of their character takes place through linguistic means, as a prerequisite to en-roling in their character. Additionally, the role-playing capacities of the group and storytelling capacities of the DM play a big part in creating the shared fictional environment that allows for a player to stay en-roled into character.

Bowman and Standiford (2016) identify six distinct categories of immersion in role-playing games: activity, game, environment, narrative, character, and community immersion. Activity immersion relates to the physical and performance aspects of role-playing, such as speaking in character, using gestures, or participating in live-action components. Game immersion refers to the willingness to strive towards the game's intended goal, where players engage with rules, strategies, and problem-solving elements. Environment immersion refers to the spatial aspects of the setting, where players feel present within the imagined environment. Narrative immersion occurs when players become engrossed in the story, which is especially prevalent in RPGs due to the first-person perspective. Character immersion involves the player's identification with and embodiment of their character, experiencing emotions and thoughts from their character's perspective. Lastly, community immersion emerges through interactions with the other players at the table, where immersion is created through shared experiences and (the creation of) social bonds. In this research, the focus will mainly be on character immersion, supported by the other forms of immersion. Immersion will be taken as a first prerequisite for building emotional involvement with a fictional character since it is a first step toward getting involved in the overall narrative and the fictional world.

As players en-role into character and enter the fictional world, it is important to note that they maintain their primary identity[1] in the real world (Bowman 2010, Chapter 6; Bowman & Lieberoth 2018). However, role-playing does offer the opportunity to explore and understand the intricacies of the inner self that comprises not only the primary identity but also the various roles that a person fulfills (Hugaas 2024; S.L. Bowman 2010; Kapitány et al. 2022). If a player is strongly immersed in the fictional world, they are likely to temporarily replace their emotions with those of their character, causing an identity shift (S.L. Bowman & Lieberoth 2018). To a certain extent, the player can control the degree to which this identity shift happens by either maintaining or letting go of a boundary between their character and themselves. This is also referred to

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[1] What exactly is meant by someone's primary identity or primary self does not appear to be addressed in literature. We assume it refers to one's identity, personality or sense of self before engaging in role-playing, including those aspects that the person believes uniquely define them.

as "having an alibi," controlling the extent to which the player places responsibility for a character's actions on the character or themselves (S.L. Bowman & Lieberoth 2018; Deterding 2017). Maintaining a stronger alibi means that players psychologically distance themselves more from their character's actions. At the same time, the alibi serves as a social contract among players, providing the permission and mutual understanding needed to portray morally ambiguous or socially transgressive behavior within the safe boundaries of the game (S.L. Bowman 2010; Hugaas 2024).

It is expected that designing a character that is more similar to the player reduces the boundary between player and character (S.L. Bowman & Lieberoth 2018). At the same time, having a stronger alibi enables the player to fully engage with the character and explore the character's identity in a safe environment (Hugaas 2024), which may make an alibi more suitable for certain character types such as the Taboo Self (cf. S.L. Bowman 2010).

## 2.4 Self-presence

To formalize this concept of a distance or boundary between a player and their character, and thus the degree to which the player experiences events and emotions from their character as if they are occurring to themselves, we propose to draw inspiration from the field of digital, immersive game experiences with the concept of self-presence. In the context of *D&D*, where the player is not just passively watching a narrative with fixed characters, but instead creates a character and actively participates, it can be argued that players of this game are encouraged to insert themselves into the game environment and become present in the story-world (Christy & Fox 2016).

Self-presence refers to the physiological state in which the character is experienced as the actual self in the perception of the body, physiological states, emotional states, and identity (Biocca 1997; Lee 2004; Ratan 2012). The element of active participation in *D&D* where players create a character that takes on an active role in pursuing narrative progression has led scholars to believe that the high level of interactivity results in a more monadic experience (seeing the character as the self) in which character role-taking is stronger than in passive media consumption, leading to self-presence (Klimmt et al. 2009; Peng et al. 2010), especially if there is little to no boundary between the player and their character (de Wit 2021). This boundary between reality and fiction is also referred to as aesthetic distance, a term that is used to explain the potential transformative effects of live-action role-playing (Levin 2020), where experiencing more (self-)presence results in a smaller aesthetic distance (de Wit 2021).

As with character immersion, in self-presence it has also been established that players never fully let go of their primary identity in favor of the character's identity, but that there is a temporary change in self-perception and social identity due to a strong degree of identifying with the character (Biocca 1997; Downs et al. 2019; Klimmt et al. 2009; Tamborini & Skalski 2006). Self-presence is said to be stronger if there is a close mapping of a character's mental models in terms of body image and identity to the player's (Tamborini & Skalski 2006). In *D&D*, the player is using their own body and voice to portray the character, which may provide a solid basis for strong degrees of physical self-presence, and subsequently other forms of self-presence to occur, especially if the personality or identity of the character is also similar to that of the player (Ratan 2012). The sense of self-presence can lead to transformative effects where the player's self-image and identity are affected even after the play session concludes (Tamborini & Skalski 2006). In other words, a strong degree of self-presence can set the stage for bleed effects to occur.

## 2.5 Bleed

While traditionally it was assumed that people recognize fictional characters as being fictional and thereby unable to affect one's primary identity, it has been shown that this 'cognitive quarantine' is indeed permeable (Holmes et al. 2024). This cognitive permeation, also known as "bleed" in live-action and tabletop role-playing

games (Boss 2007), can occur whenever a person immerses themselves into a fictional character and aspects of the self spill over from the player into the character or vice versa (Vi Åker Jeep, n.d.). These aspects include emotions, thoughts, behavior, relationship dynamics, physical states, ideologies, and personality traits, among others (Bowman 2022). It is important to note that bleed is a neutral occurrence, devoid of inherent positivity or negativity (Bowman 2022). Bleed distinguishes itself from immersion and self-presence in that it relates the character's identity to the player's primary identity, instead of the player temporarily replacing their own primary identity with the character's.

Several mechanisms have been identified that could potentially help explain how bleed takes shape. For example, a strong degree of immersion causing an identity shift could set the stage for elements of the temporary adoption of another identity to remain as long-term changes to one's primary identity (Bowman & Lieberoth 2018). A similar concept is identity fusion, where, in the case of a strong fusion, the character's and player's identity feel as one, again showing potential for bleed (or cognitive permeation) to occur when strong emotional experiences are shared between player and character (Holmes et al. 2024). While being immersed or engaged in role-play, meta-reflection, and metacognitive processes, where players fluently switch between perceiving fiction, reality, and the integration of both, likely facilitates bleed (Holmes et al. 2024; Levin 2020). Perhaps slightly less applicable to tabletop role-playing, in live-action role-playing the physical embodiment and enactment of the player's character is identified as a strong mechanism that blurs the boundary between a player and their character, making it more likely for bleed to occur (cf. embodied cognition; Lankoski & Järvelä 2012; Leonard & Thurman 2018).

Bleed can be experienced in two ways: bleed-in and bleed-out. When experiencing bleed-in, a player (subconsciously) starts spilling aspects of themselves into the character. If this happens consciously, it could also be likened to the concept of *steering* as seen in live-action role-playing (Montola et al. 2015). Bleed-out is when aspects of the character spill back into the player's primary identity. The main difference between bleed and the identity shift that was previously mentioned in the context of immersion and self-presence, is that while identity shift is a temporary replacement of the player's emotions and experiences with that of the character alongside the player's primary identity, bleed is a transformative experience resulting from this identity shift that changes the player's primary identity in some way (Hugaas 2024). It can thus be seen as a way to (re)form one's identity, a phenomenon that people tend to engage in through various means, including role-playing. However, there appears to be a bleed perception threshold under which people are not consciously aware that they are experiencing bleed, even though their identity may be reflected upon and altered anyway (Hugaas 2024).

Regardless of the direction of bleed, there are several types. S.L. Bowman (2022) proposed the following taxonomy of bleed, based on previous research: emotional bleed (Montola 2010), procedural bleed (Hugaas 2019), memetic bleed (Hugaas 2019), romantic bleed (Bowman & Hugaas 2021; Harder 2018), ego bleed (Beltrán 2013), identity bleed (Hugaas 2024), emancipatory bleed (Kemper 2017; 2020), and design bleed (Toft & Harrer 2020). Within this taxonomy, the breadth and level of abstraction differ between categories. For example, emotional bleed contains any emotional state, while romantic bleed includes feelings of romantic and/or sexual attraction, which is very niche when compared to emotional states as a whole. After reviewing the categories and existing literature, we propose four, more evenly distributed categories: emotional, social, cognitive, and behavioral bleed. The two directions of bleed and the types of bleed were used in creating the measurement instrument for bleed that was applied in the current study. The bleed categories used in this study bear close similarities to the constructs introduced by Hugaas (2024) as well as those in the measurement of cognitive permeation proposed by Holmes et al. (2024). While our framework aligns with aspects of Hugaas' work, it differs in that we focus on observable manifestations of bleed rather than the underlying psychological mechanisms. Hugaas (2024) distinguishes between "components" (experiential elements of bleed) and "constructs" (analytical categories), whereas our categories are designed as functional groupings for measurement purposes. The different yet conceptually related labels between these taxonomies are compared in Table 1.

**Table 1:** Comparison of the taxonomy of bleed categories in the current research, the definition by Hugaas (2024), and the measurement of cognitive permeation by Holmes et al. (2024).

| This study | Hugaas (2024) | Holmes et al. (2024) |
|---|---|---|
| Emotional | Emotional | Emotion |
| Societal | Relationship | Social |
| Cognitive | Memetic, ego, identity | Cognition |
| Behavioral | Procedural | Skills |
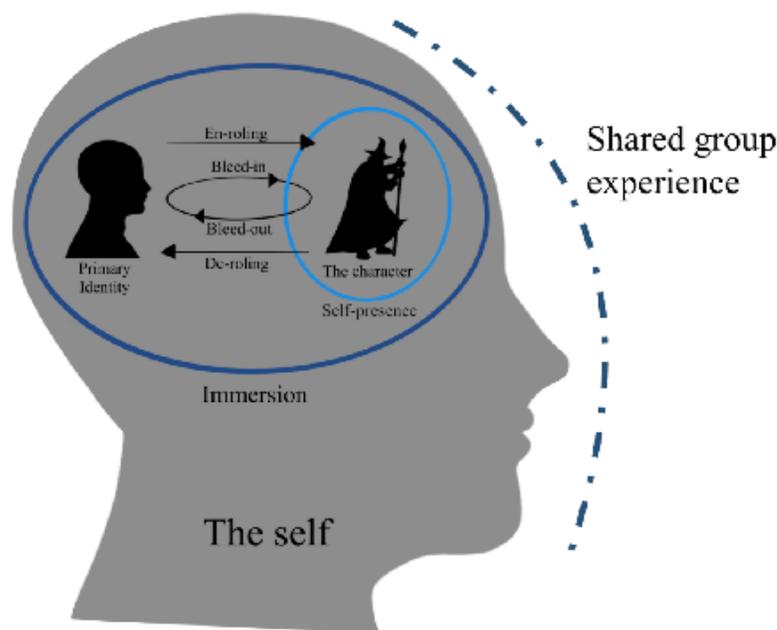


**Figure 1:** A visual representation of the self experiencing bleed

Combining the literature, a visual representation of bleed was developed, which can be found in Figure 1. Since, in the context of this study, the player is the designer of the character, the entire process happens within the boundaries of the self, as well as being influenced by the shared group experience when playing the game. Within this model, immersion (into the game world and into the narrative) is seen as the first state that needs to be reached to fully experience both self-presence and, subsequently, bleed. As such, we propose the first hypothesis:

> **Hypothesis 1:** A higher degree of experienced immersion leads to a higher degree of self-presence.

Self-presence can be experienced when the player is immersed in the narrative and present in the environment depicted by the DM, and is reached when the player is en-roled into the character, where it feels like they *are*

the character, and is thus seen as a second prerequisite of bleed. Given the character-dependent nature of this phenomenon, this is suspected to be a strong factor in bleed. Thus, we propose the following hypothesis:

> **Hypothesis 2:** A higher degree of experienced immersion leads to stronger reported bleed, and this effect is mediated by self-presence.

The degree to which bleed-in and bleed-out are experienced may differ depending on how similar a character is to the player. S.L. Bowman and Lieberoth (2018), for example, state that the boundary between a player and their character is likely to be smaller if the character and player are similar. In self-presence research, a similar phenomenon is suggested where the player and character share similarities either in appearance or identity (Tamborini & Skalski 2006). We further expect that it will be more difficult to portray a character that is dissimilar to the player, as their behavior and responses to events that happen in the fictional world are new to them. As such, bleed-in hypothetically should be more pronounced when the character and player are similar. At the same time, when the player and their character are dissimilar, there may be more room for bleed-out to occur, as the player has ample room to explore an identity different from their own, and to merge parts of this identity with their own.

In between these two extremes of similar and dissimilar characters, we expect characters that belong to the Idealized Self type (cf. S.L. Bowman 2010) to be similar to the player in some respects while being dissimilar in others, resulting in equal parts bleed-in and bleed-out. These character types are expected to stimulate wishful identification, a psychological process where a person aspires to emulate (fictional) characters sharing traits they possess while embodying qualities they desire (Hoffner & Buchanan 2005). Based on these different character type designs, we propose the following hypotheses:

> **Hypothesis 3a:** Characters that are similar to the player result in a stronger bleed-in effect and weaker bleed-out effect.

> **Hypothesis 3b:** Characters that embody a player's wishful identification result in equally strong bleed-in and bleed-out effects.

> **Hypothesis 3c:** Characters that are dissimilar to the player result in a stronger bleed-out effect and weaker bleed-in effect.

## 3. METHOD

### 3.1 Participants

The study was approved by the research ethics and data management committee of the researchers' university. A G*Power (version 3.1) analysis indicates a desired sample size of 41 for the paired samples t-tests used to compare bleed-in and bleed-out effects within participants (H3) for detecting a medium-sized effect (0.40) at a power ($1-\beta$) of 0.80 and significance level of $\alpha = .05$. For the mediation analyses (H1, H2, exploratory analyses) G*Power does not provide a desired sample size, but literature indicates a minimum sample of 71 participants for medium-sized $\alpha$ and $\beta$ paths (.39) with bias-corrected bootstrapping (Fritz & MacKinnon 2007). Due to the difficulty of reaching a large group of active *D&D* players willing to invest in creating a new character for the purposes of this research and spending time playing this character, we did not manage to meet this desired minimum sample size. As such, especially the mediation analyses need to be interpreted with some caution. A total of 42 volunteers from 11 different countries were recruited from four Discord servers and through Reddit, adhering to West Marches' rules for gameplay.

Participants had no previous knowledge about the experiment objectives. Of the three conditions, 18 participants played a character similar to themselves, 13 participants a character of the Idealized Self type, and 11 participants a dissimilar character. Of the 42 participants included in the sample, 64 percent were male (n = 27), 26 percent were female (n =11), five percent were non-binary (n = 2), and five percent did not want to disclose their gender (n = 2). The largest group indicated to be between 25-34 years old (n = 28), with ages ranging from 18 to 44 years old. Looking at nationalities, 38 percent (n = 16) of the participants were from the United States, and 29 percent (n = 12) were from the Netherlands. Other countries include the United Kingdom (n = 4), Denmark (n = 2), Malaysia (n = 2), Belgium (n = 1), Brazil (n = 1), Ecuador (n = 1), Indonesia (n = 1), Kuwait (n = 1) and Poland (n = 1). Sixty percent of the sample (n = 25) had a degree in higher professional education or above. Half the participants (n = 21) had at least four years of experience playing *D&D*, while the other half had less than four years of experience. Most participants (n = 11) indicated playing *D&D* around 5-10 hours a week.

### 3.2 Materials and Measures

Two questionnaires were administered through Qualtrics. The first, before the experiment, included demographic questions, *D&D* experience, and the 16personalities.com personality test as a basis for character creation. The second questionnaire, administered after three months, measured immersion, self-presence, and bleed. Both questionnaires can be found in the appendix.

Character creation was done using the Myers-Briggs-based, gamified 16personalities.com personality test. The test was used to offer suggestions for the character's personality strengths and weaknesses. According to critics, Myers-Briggs is unlikely to be a valid measure of personality and is largely refuted by scholars. Reasons for this refusal include, but are not limited to, the lack of consistency that stems from having people self-verify the results, and how the test is widely used to explain people's behavior, rather than describe it (e.g., Stein & Swan 2019; Weddle 2015). Nevertheless, while the test is not a tool for predicting performance or outcomes, it is helpful to users as a guideline for increased self-awareness and understanding (Stein & Swan 2019). In this study, the main purpose of the gamified personality test is to offer suggestions of characteristics to participants to stimulate the creative process of character creation. Although personality and identity are different, we decided to use these archetypal personality types to give participants structure in shaping their characters' behavior while engaging in role-playing. In other words, it was a vastly simplified way of operationalizing similarity between player and character for this study.

Immersion was assessed using the Immersive Experience Questionnaire (IEQ) combined with the Understanding Media Enjoyment Questionnaire from Green and Brock (2000). Because to our knowledge, there is no scale that focuses on measuring immersion in the context of analog role-playing games, these more general scales were adapted for this study. While the IEQ contains items that capture character immersion, the Understanding Media Enjoyment Questionnaire adds four of the six types of immersion described by Bowman and Standiford (2016): activity, game, environment, and narrative immersion. The sixth type, community immersion, does not seem to be covered by existing scales. Both questionnaires measure the subjective experience of being immersed in a game/narrative by letting participants report their feelings on a 7-point Likert scale, ranging from "not at all" to "a lot". An assessment of the internal consistency of the measure of immersion, consisting of 21 items, showed Cronbach's Alpha being $\alpha$ = .87.

Self-presence was measured using the Self-Presence Questionnaire (SPQ), adapted for *D&D* (Ratan 2012). The SPQ measures the subjective experience of feeling self-presence in a virtual environment on a 5-point Likert scale, ranging from "not at all" to "absolutely."

Bleed was assessed through a questionnaire developed specifically for this study, covering bleed-in and bleed-out across four categories: social settings, emotional capacity, cognitive capacity, and player behavior. The questionnaire measures both bleeding into a character and bleeding out of a character. It has been designed in the context of this study because, to the researchers' knowledge, no measurement instrument for bleed existed at the time this study was conducted. Later, we discovered the measurement of cognitive permeation, a similar construct to bleed (Holmes et al. 2024). Comparing the two measurement scales, they share a strong resemblance, where both contain items describing permeation or bleed from character to player, and from player to character, across four categories that are similar between the two scales (as shown in Table 1).

Our newly designed questionnaire has been evaluated by three experienced *D&D* players from the researcher's network. The measures of bleed were split into bleed-in and bleed-out, and on a sub-level split into the four above-mentioned categories of bleed: emotional (e.g., "After the session the emotions I felt during the game often lingered"), social (e.g., "I started disliking a player more because of the dislikable character they play"), cognitive (e.g., "Playing my character has helped me feel more comfortable with myself"), and behavioral (e.g., "When I act out what I say I am doing (for example through hand movements), I notice I connect more with my character"). An assessment of the internal consistency of the measure of self-presence, consisting of 15 items, showed Cronbach's Alpha being $\alpha = .84$. The adjusted questions, including the reasoning for the adjusted or omitted questions, can be found in the appendix.

Open-ended questions were included because of the novelty of the bleed scale. These explored the player's experience and were included to serve as further information as to why bleed was or was not happening.

## 3.3 Procedure

Participants provided informed consent and completed a demographic questionnaire. They were randomly assigned to one of three character personality conditions: close to their own personality (similar), close to their ideal personality, or opposite to their own personality (dissimilar). A personality test on 16personalities.com provided a baseline for character creation. Participants were instructed to play their characters as desired for three months, going through (parts of) the other stages of the evolution of role-playing characters—development of the character, interaction between the character and the game world, and optionally reaching the stage of full character realization (S.L. Bowman 2010; Chapter 7)—while tracking their in-character time. After this period of time, participants were given a survey measuring the amount of immersion, self-presence, and bleed they experienced over the whole period in which they played.

## 3.4 Analysis

Internal consistency was assessed using Cronbach's Alpha, and a factor analysis was conducted to validate the bleed scale. Answers to the open-ended questions provided qualitative data for further explanation. An assessment of the internal consistency of the measure of character-bleed, consisting of 18 items, showed Cronbach's Alpha being $\alpha = .89$. Next, looking closely at the validity of the scale of bleed, a split was made between bleed-in and bleed-out. For the scale for bleed-in, Cronbach's Alpha is $\alpha = .66$. For the scale for bleed-out, Cronbach's Alpha is $\alpha = .88$. The factor analysis was conducted on the bleed scale using Varimax rotation due to the differences in bleed types and subtypes. The analysis revealed four factors with eigenvalues above 1, explaining 65.12 percent of the variance in bleed. These factors did not align with the predetermined structure, combining bleed-in and bleed-out statements. To account for this, a subsequent analysis focusing on one retained factor showed that nine items intended to measure bleed-out clustered well together, explaining 51.47 percent of the variance with an eigenvalue of 4.63. Consequently, the original plan to analyze bleed as a single construct was revised to distinguish between bleed-in and bleed-out.

## 4. RESULTS

### 4.1 Immersion, self-presence, and bleed

Following the preregistration,[2] the study began by investigating whether the relationship between immersion and bleed could be elucidated by the concept of self-presence, as stipulated in Hypotheses 1 (H1) and 2 (H2). Two mediation analyses were conducted, focusing on bleed-in and bleed-out as separate outcome variables. All assumptions for the mediation analyses (independence of errors, multicollinearity, heteroscedasticity, normality, outliers) were checked and met. The means and standard deviations can be found in Table 2 below.

**Table 2:** Means and Standard Deviations of the Variables measured on a scale of 1-5.

| Sub-scale | M | SD |
|---|---|---|
| Immersion | 3.71 | .59 |
| Self-presence | 3.66 | .68 |
| Bleed | 3.11 | .74 |
|     Bleed-in | 3.19 | .65 |
|     Bleed-out | 3.09 | .89 |

### 4.2 Mediation analysis with immersion, self-presence, and bleed-in

The model with immersion and self-presence to predict bleed-in is an improvement over the null model ($R^2=$ .17, $F$ [1, 40] = 8.30, $p=$ .01), with the model predicting 17.2 percent of the variance in bleed-in. The model also showed a significant effect of immersion on self-presence ($b=$ .58, $SE=$ .16, $p<$ .001), indicating that a higher immersion score led to higher scores on self-presence. This leads to the acceptance of the first hypothesis that a higher degree of experienced immersion leads to a higher degree of self-presence. Furthermore, results showed there was no significant direct effect of immersion on bleed-in ($b=$ .37, $SE=$ .20, $p=$ .07), nor a significant effect of self-presence on bleed-in ($b=$ .23, $SE=$ .18, $p=$ .20). Nevertheless, a significant total effect emerged ($b=$ .51, $SE=$ .18, $p=$ .01), indicating that the relationship between immersion and bleed-in is mediated by self-presence. The conceptual model can be found in Figure 2 below.

A second model was run where the time participants spent playing their characters was added as a covariate. The second model was a slight improvement over the first model ($R^2=$ .18, $F$ [2, 39] = 4.16, $p=$ .02), with the model predicting 17.6 percent of the variance in bleed-in. However, the model shows no significant effect of hours participants spent in character on bleed-in ($b=$ -.01, $SE=$ .03, $p=$ .67).

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[2] Click here to see the preregistration form.

Indirect effect: $b$=.13, 95% CI[-.03, .44]

Self-Presence

$b$=.58, $p$<.001

$b$=.23, $p$=.20

Immersion

Character bleed-in

Direct effect: $b$=.37, $p$=.07

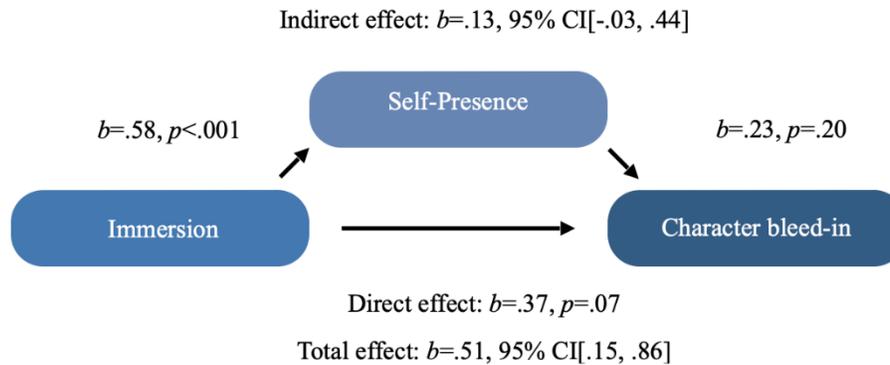Total effect: $b$=.51, 95% CI[.15, .86]

**Figure 2:** Conceptual model of Bleed-in with Immersion and Self-presence

### 4.3 Mediation analysis with immersion, self-presence, and bleed-out

The model with immersion and self-presence to predict bleed-out is an improvement over the null model ($R^2$ = .41, $F$[1, 40]= 28.05, $p$<.001), with the model predicting 41.2 percent of the variance in bleed-out. Results showed there was a significant direct effect of immersion on bleed-out ($b$=.84, $SE$=.23, $p$<.001). There was no significant effect of self-presence on bleed-out ($b$=.40, $SE$=.20, $p$=.052). However, there was an indirect effect of the model ($b$=.23, $SE$=.15, 95% BCa CI [.03, .61]) and a total effect of immersion on bleed-out ($b$=1.07, $SE$=.20, $p$<.001), meaning that despite self-presence not directly explaining bleed-out, the relationship of immersion on bleed-out is significantly explained by the mediator of self-presence. The conceptual model can be found in Figure 3 below.

Indirect effect: $b$=.23, 95% CI[.03, .61]

Self-Presence

$b$=.58, $p$<.001

$b$=.40, $p$=.052

Immersion

Character bleed-out

Direct effect: $b$=.84, $p$<.001

Total effect: $b$=1.07, 95% CI[.66, 1.48]
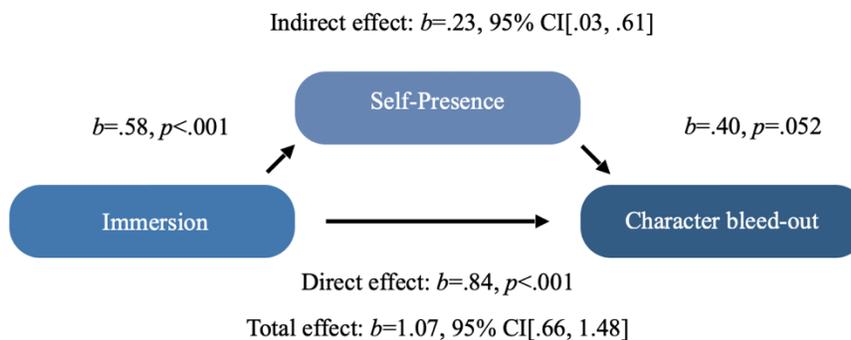
**Figure 3:** Conceptual model of Bleed-out with Immersion and Self-presence

Given that in both models there is a total effect of immersion on bleed, which is mediated by self-presence, this leads to the acceptance of the second hypothesis that a higher degree of experienced immersion leads to stronger reported bleed, and this effect is mediated by self-presence.

A second model was run where the time participants spent playing their characters was added as a co-variate. The second model was a slight improvement over the first model ($R^2$=.42, $F$[2, 39] = 14.24, $p$<.001), with the model predicting 42.2 percent of the variance in bleed-out. However, the model shows no significant effect of hours participants spent in character on bleed-out ($b$= -.02, $SE$ = .03, $p$= .42). Because the number of hours participants spent in character is neither a significant contribution to bleed-in or bleed-out, it can be concluded that the extended period of time does not play a role in the development of bleed.

## 4.4 Character types and bleed

The subsequent analysis aimed to explore the influence of character types on bleed, as postulated in Hypothesis 3. Table 3 below illustrates the means and standard deviations per character type.

**Table 3**: Means and Standard Deviations of the Variables measured.

| Sub-scale | | M | SD |
|---|---|---|---|
| Character similar to self | Bleed-in | 3.07 | .62 |
| | Bleed-out | 2.78 | .83 |
| Wishful identification | Bleed-in | 3.31 | .67 |
| | Bleed-out | 3.19 | .86 |
| Character dissimilar to self | Bleed-in | 3.22 | .71 |
| | Bleed-out | 3.49 | .92 |

A paired samples t-test was conducted per condition to determine the effect of character types on bleed-in and bleed-out (H3). For characters similar to the player, a significant difference was observed between bleed-in ($M$= 3.07; $SD$= .62) and bleed-out (M= 2.78; $SD$= .83); [$t$ (17) = 3.23, $p$= .01]. This finding suggests that characters that were designed to be similar to the player led to stronger bleed-in than bleed-out, which means Hypothesis 3a can be accepted.

For characters who portrayed a player's wishful identity, no significant difference was observed between bleed-in ($M$= 3.31; $SD$= .67) and bleed-out (M= 3.19; $SD$= .86); [$t$(12) = .91, $p$= .38], affirming hypothesis H3b.

For characters that were designed to be dissimilar to the player, no significant difference emerged for bleed-in ($M$= 3.22; $SD$= .71) and bleed-out (M= 3.49; $SD$= .92); [$t$(10) = -1.31, $p$= .22]. which contradicts H3c. Thus, characters that were dissimilar to the player did not result in stronger bleed-out than bleed-in.

## 4.5 A unified model

To synthesize the findings and examine the complex interplay between character types, immersion, self-presence, and bleed, a unified model was constructed. This analysis tested the mediating roles of immersion and self-presence in the relationships between character types and bleed-in and bleed-out.

In the first serial mediation model, character type was the predictor variable for the outcome variable bleed-in, with immersion as the first mediator and self-presence as the second mediator. This model did not come out as an improvement over the null model ($R^2$= .01, $F$[1, 40]= .49, $p$= .49). The analysis shows a positive effect of immersion on self-presence when the effects of character types are controlled ($b$= .59, $SE$= .16, $p$<.001). Results also show that character types do not affect immersion ($b$= .07, $SE$= .10, $p$= .51) or self-presence ($b$= -.07, $SE$= .10, $p$= .51). In addition, neither character types ($b$= .07, $SE$= .11, $p$= .55), nor immersion ($b$= .35, $SE$= .21, $p$= .09), nor self-presence ($b$= .24, $SE$= .18, $p$= .18) affect bleed-in. Finally, there is no indirect effect ($b$= .02, $SE$= .05, 95% BCa CI [-.07, .14]) or total effect ($b$= .09, $SE$= .12, 95% BCa CI [-.16, .34]) either. The results can also be found visualized in Figure 4 below.

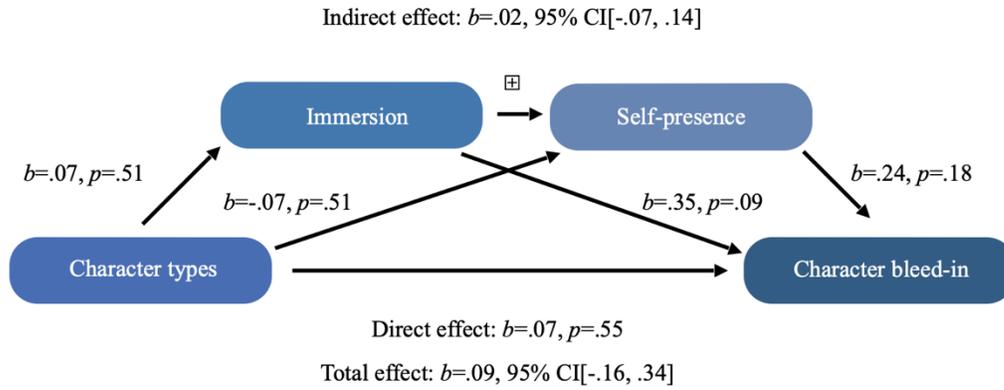Indirect effect: $b$=.02, 95% CI[-.07, .14]



**Figure 4:** Conceptual Model of Bleed-in with Character Types, Immersion, and Self-presence

In the second serial mediation analysis with bleed-out as the outcome variable, the model is an improvement over the null model ($R^2$= .11, $F$ [1, 40]= 5.06, $p$= .01). Additionally, self-presence has a positive effect on bleed-out when the effects of character types and immersion are controlled ($b$= .45, $SE$= .18, $p$= .02) as does immersion on bleed-out when character types is controlled ($b$= .76, $SE$ = .21, $p$= .001). In this case, an indirect effect was not observed ($b$= .04, $SE$= .10, 95% BCa CI [-.13, .25]), but the total effect of character types on bleed-out was significant ($b$= .36, $SE$= .16, $p$= .03), meaning that the combined influence of the direct effect of character types on bleed-out and the indirect effect flowing through the mediators of immersion and self-presence shows a significant total effect, next to the significant direct effect of character types on bleed-out. The results can also be found visualized in Figure 5 below.

Indirect effect: $b$=.04, 95% CI[-.13, .25]
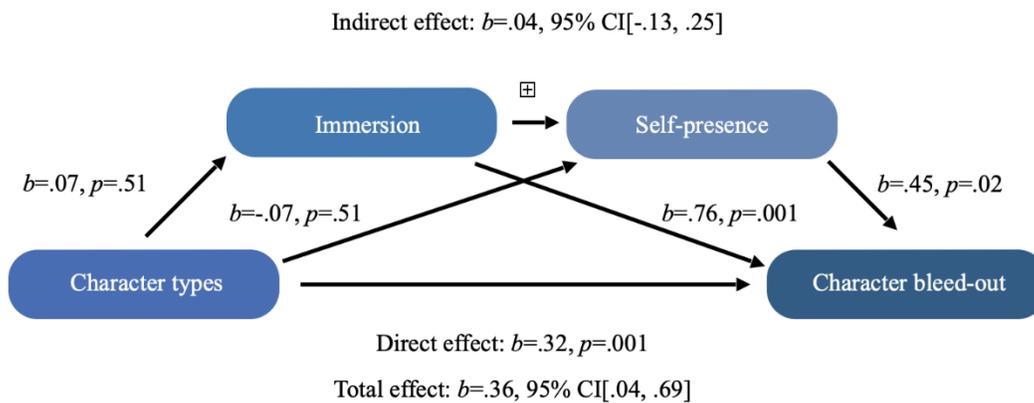


**Figure 5:** Conceptual model of Bleed-out with Character Types, Immersion, and Self-presence

## 5. DISCUSSION

This study investigated the interplay between immersion, self-presence, and bleed in the context of online *D&D* to further investigate how a character's design, in terms of similarity to the player, affects the player after spending time role-playing the character in a naturalistic setting. For this study, a new measurement for bleed was created.

**5.1 Immersion, self-presence, and bleed**

This study's results demonstrate several key findings. Firstly, a higher level of experienced immersion was found to be associated with a stronger sense of self-presence, confirming the first hypothesis. This aligns with prior research (e.g., Baños et al. 2004) and emphasizes the importance of immersion in fostering a player's sense of presence in the character within the game world. Moreover, this study revealed that higher levels of immersion were linked to stronger reported bleed. This effect was mediated by self-presence, supporting the second hypothesis. It suggests that while immersion draws the player into the game world, it is the internalization of the character's perspective (self-presence) that facilitates emotional spillover.

Furthermore, it was expected, as the bond between player and character develops , that the amount of experienced bleed would grow stronger over time (S.L. Bowman 2010; Giles 2002). However, this does not seem to be the case as shown by the insignificant influence time has on the mediation models' performance, indicating that bleed is more closely associated with the intensity of experiential engagement (immersion) and identification with the character's perspective (self-presence), rather than simply the duration of play. Looking at players' experiences of the game *World of Warcraft*, Banks et al. (2019) note that this is partially shaped by the attachment style of the player to the character.

Putting that notion in the light of this study, future research should further investigate this relationship to create more clarity on the role that player-character relations have on bleed and how this ties into the role of immersion and self-presence. While this study did not measure the bond players felt with their characters, the answers to the open questions already show an interesting incentive for this research. One participant noted: "I feel like my character is more of a friend than a part of myself, it was very unlike myself, so I see it more as a friend I had to act as rather than an extension of myself" (P29, dissimilar character). This example shows that player-character relationships, while heavily dependent on the player's preferred style of playing, can change according to the personality they create for their character, and can thus vary per character.

To answer the other half of the research question about how a character's design affects the development of bleed between players and characters, further analyses were conducted that are discussed below.

**5.2 Character design – similar to the player**

This study further delved into how a character's design affects bleed. The character design was operationalized as the personality of the character being either similar to, dissimilar to, or an idealized version of the player's, with the idea that players would then further shape the characters accordingly as they are confronted with situations in the fictional universe (cf. S.L. Bowman 2010). Participants who played characters similar to themselves experienced more bleed-in than bleed-out. This result suggests that players tend to project their own traits and emotions onto characters that closely mirror their own personalities, aligning with hypothesis 3a.

However, the actual extent of bleed-in may be underestimated, as some participants may not consciously recognize bleed-in, considering the close alignment of their own personality with their characters and the bleed perception threshold (Hugaas 2024). When a player's sense of self is closely aligned with the role they play, it might become harder for the player to perceive the experience of bleed. For example, one participant mentioned: "I found myself connecting to the character in a way that let me try to feel as if I had lived in the setting myself and taken the actions that my character did" (P20, similar to self), while later on saying "I could not name an example [of bleed-in] myself."

Regardless, when looking at the open-ended questions for additional insights, participants do report experiencing bleed-in. For example, one participant mentioned: "I do feel like my mood can bleed into the way I play more than anything. If I'm feeling down, I usually don't try to speak up as much during role-play" (P23, similar to self), illustrating how someone's emotions can bleed into the character. On the social level, another participant noted: "I felt the connection I had to other players. I felt my character interacted easier with players I knew and were comfortable with, whether it be a hostile interaction or a friendly one" (P29, similar to self). This continues to show that, while the results should be interpreted with care, participants playing a character similar to themselves report experiencing bleed-in.

Furthermore, participants reported that playing characters similar to themselves made them more self-aware, while also making them feel more vulnerable. For example, one participant said:

> Deliberately making a character with some of my own flaws and strengths didn't make me enjoy being the character any more than others I've played, but it did make some emotional moments resonate more. Like, "Oh, if he can do this thing in this situation, despite having the same flaw related to it that I do, maybe I can do it, too." (P17, similar to self)

Meanwhile another participant mentioned: "I felt very vulnerable and exposed playing this character" (P11, similar to self). This shows that while playing a character that is similar to the player might lead to new insights regarding how other people and participants themselves accept their flaws, participants generally did not enjoy it a lot because of how vulnerable it made them feel. This could perhaps be explained by the lack of an alibi (S.L. Bowman & Lieberoth 2018; Deterding 2017), thereby reducing the distance between a player and their character (Levin 2020).

### 5.3 Character design - wishful identification

For participants who created characters representing their ideal selves, it was observed that both bleed-in and bleed-out were experienced to a similar degree, corroborating hypothesis 3b. Looking at the open questions for further insights into this result, participants in this condition generally enjoyed the experience of playing a character similar to who they would like to be, while also being able to learn something about themselves. For example, one participant said "[I have experienced this as] positive. A bit of self-searching, taking a step back and realizing I could be myself a bit more at times" (P3, wishful identification), while another reported:

> My character definitely had me thinking about some of the ways I handle situations. While my initial intentions might have been to please the majority of others, I had to step back and think about how my character would handle it in not being a people pleaser. It made me more aware of my everyday situations and made me more confident to say "no" or to do what I needed and not what I thought someone else wanted. (P13, wishful identification)

These examples continue to illustrate how playing a character tied to one's ideal self can make one realize that they have the power to become who they want to be. Adding elements of yourself and someone you wish to be like into a character led to both bleed-in and bleed-out. These players enjoyed the experience and reported personal growth, indicating that wishful identification with a character led to self-reflection and empowerment. We postulate that this may be due to the combination of identifying with the character yet still being able to explore new aspects of one's role and identity in metareflection (Levin 2020).

### 5.4 Character design – dissimilar to the player

For those who played characters that were dissimilar to themselves, it was found that bleed-out was not significantly stronger than bleed-in. However, when accounting for immersion and self-presence, character types did have a notable effect on bleed-out, explaining 41.2% of the variance. This suggests that characters vastly different from the player can lead to stronger bleed-out as compared to characters that are more similar to the player.

Seeking an explanation for the found effect by looking at the open questions, participants in this condition mentioned they had a hard time connecting to their characters and that it often felt unnatural to play them. However, they often described the experience as a positive one, both giving insights into themselves and strengthening their acting skills. For example, one participant said: "I think this may have helped me a bit with my self-confidence. Even if I did not like the process" (P15, dissimilar to self). While another mentioned:

> [I have experienced this as] absolutely positive - it was an exciting challenge to undertake, to play someone as contrary to myself, and playing a build I find compelling and interesting. Even though [my character] and I have different personalities, and I found his aloof nature sometimes to be aggravating to myself, it built my social and role-playing skills significantly. (P33, dissimilar to self)

This illustrates that, despite participants mentioning they had a hard time connecting to their character, they experienced bleed-out. The difficulty participants found in connecting with their characters did not diminish the positive experiences they had. These descriptions of players' experiences seem to align not just with the Oppositional Self, but also have some of the elements of the Experimental Self as described by S.L. Bowman (2010), mainly in the level of role-playing challenges encountered by these players. Because it is harder to take on the role of the character, immersion and self-presence become more important. When looking at the serial mediation model for bleed-in, it appears that players generally did feel immersed and self-present, despite their reported difficulty getting into character. While research into *D&D* shows that players prefer to play characters reflecting their own personality (Park & Henley 2007), this study shows that the connection to a character in terms of similarity might not be necessary to gain new insights and learn new skills through bleed-out.

Previous research states that when a player plays a character that is similar to themselves, the alibi tends to be weaker, leading to more bleed (Bowman 2013; 2015; Brown et al. 2019). However, this study found that characters with a dissimilar personality from a player's personality can result in experiences of bleed-out. An explanation can be found in Leonard and Thurman's (2018) research, which found that there is limited room for self-regulation, distinguishing thoughts, feelings, and impulses when more cognitive effort is dedicated to taking on the perspective of the character. This could imply that the additional cognitive resources that are needed to portray a dissimilar character might reduce the amount of cognitive resources that are available for self-regulation, making bleed more likely. Furthermore, a stronger alibi could provide a safe space for exploration (Hugaas 2024).

An alternative explanation for the effects of dissimilar characters is that bleed is more easily perceived by the player when the character they play is vastly different from the player's primary identity, following Hugaas' (2024) conceptual model of the bleed perception threshold. The perceived difference between the player's primary identity and the identity of their character can play a role in the experience of bleed, with bigger differences being easier to recognize in a player's perception of bleed. Interestingly, in related work by Holmes et al. (2024), no significant correlation was found between cognitive permeation (akin to bleed) and a player's perceived similarity between their own personality and their character's. This appears to contradict our findings, however in Holmes et al. (2024) the character was not deliberately designed to be similar or dis-

similar to the player, and a general measure of cognitive permeation was used without distinguishing between permeation from the player to the character (bleed-in) and vice versa (bleed-out).

### 5.5 Limitations and directions for future research

With this study, we provide further insights into the mechanisms underlying bleed and the role of different character designs (in terms of their similarity to the player) on eliciting bleed. However, the study is subject to some limitations that warrant future research, mainly relating to the sample and the validity of the newly created bleed questionnaire.

The participants in this study were largely recruited from the same, although broad, game community without careful balancing regarding age, levels of education, or gender identity. Although analyses of the relationships between immersion, self-presence, and bleed are relatively well-powered as they include the entire sample, the number of participants in each condition is small. As such, the effects of different character types should be interpreted with caution, and there is a need for future research to study these differences in player-character similarity in a more systematic, large-scale manner. We believe that our initial findings, especially combined with the qualitative accounts of players' experiences with different character types, highlight the need for more research in this direction.

At the time of conducting the study, we could not find a way to quantify and measure bleed, and as a result, we created our own measurement instrument. Upon analysis of the newly created measurement for bleed, it turned out that the statements to measure bleed-out showed high validity and that the statements clustered well together. For this half of the measurement, the first attempt at developing a questionnaire to measure bleed was thus considered successful. The statements for bleed-in, however, had questionable validity and did not cluster well together. Important to note is that the measurement was created before Hugaas's (2024) conceptual model for bleed. It can be beneficial for further development of our scale to take this model into account to create a more balanced scale for future research.

In addition, when writing this paper, we discovered the related concept of cognitive permeation along with a questionnaire to measure this (Holmes et al. 2024). The authors of this questionnaire define a similar taxonomy of permeation or bleed types (cognition, emotion, skills, social), and they also distinguish between transfer from player to character and vice versa. Their initial factor analysis indicates that all items can be combined into one measure of permeation or bleed, as we were also originally intending to do. However, in a second study, the authors identify two factors, similar to our factor analysis: one that describes permeation from the character to the player (bleed-out) and one that describes permeation from the player to the character (bleed-in).

Due to the relatively small sample size, our factor analysis should be interpreted with caution, and a more thorough validation of our proposed questionnaire for measuring bleed is needed. However, with two factors, 18 variables, and relatively high factor loadings, the factor analysis should be reliable even with a small sample size (de Winter et al. 2009). In addition, the fact that a similar questionnaire emerged from Holmes et al. (2024) and their second analysis identified similar factors adds further confidence that we have made steps toward measuring bleed (or a similar construct). In future work we aim to join forces to provide one definite and validated measure of bleed or cognitive permeation.

Although we have let participants role-play their character for an extended period, it would be beneficial to carry out quantitative research with multiple moments of measurement to get a more intricate view of how the player-character relationship and bleed develop. The decision of a singular point of measurement was chosen in this research to keep ecological validity intact while lowering the bar for participation. However, as Hugaas (2024) has mentioned, the perception of bleed by the player can differ over time. A player can notice the experience of bleed during play, but then later report something different. It would be beneficial to implement a measurement during play, as well as a measurement later in time, to determine if the experiences

participants mentioned during the experiment linger after they stop playing the character. This will lead to a better understanding of the effectiveness and longevity of the effects of bleed. Furthermore, while we used a personality test to stimulate the creation of a character that shares a certain degree of similarity with the player, we did not follow up with a similarity measurement to see if the character indeed further developed along the same line as players started role-playing the character.

Lastly, bleed is a concept that has mostly been studied in terms of high-player-agency role-playing games like *D&D* and larp. Because the spillover of a character to a player could happen whenever there is a character present in whose point of view the player is immersed, it could be interesting to learn more about the role player agency has in experiencing bleed. By framing the concept in the gaming landscape, and potentially larger within the media landscape, this should help increase the understanding of the concept of bleed and its prerequisites in various contexts.

## 4. CONCLUSION

This study aimed to investigate how a character's personality design in *D&D* affects the player over an extended period of play. To do so, a new measurement instrument was developed, and an experiment was conducted using this measurement to see how people experience bleed and how their experience is affected by character design. Across the three types of character designs, these results were found: first, while participants playing a character similar to themselves reported feeling vulnerable, they still felt both drawn into the game world (immersion) and aligned with their character's perspective (self-presence), and experienced bleed. For participants within this condition, bleed-in was significantly more present than bleed-out.

Second, participants who created a character's personality by turning their weaknesses into strengths generally reported enjoying playing the character. They experienced immersion, self-presence, and bleed. The amount of bleed-in did not significantly differ from the amount of bleed-out. Third, participants playing a character whose personality was opposite to their own reported having a hard time connecting to their character in terms of role-play. There was no significant difference in the amount of bleed-in and bleed-out experienced. However, when running a model for bleed overall, including immersion and self-presence as mediators, it was found that the more dissimilar a character is from the player (measured in the three degrees of similar, wishful identification, and dissimilar), the higher the amount of bleed-out experienced. Immersion and self-presence levels were consistent across character types.

Furthermore, time spent role-playing the character did not seem to have a significant contribution to the development of bleed, whereas immersion and self-presence did, indicating that bleed is more dependent on immersion and self-presence than on duration. This suggests that experiencing bleed relies more on someone's willingness to immerse and identify with their character than spending a lot of time with the character.

This research contributes to the emerging research field of player-character dynamics in role-playing games by shedding light on how a character's personality design affects the player in the context of bleed. Furthermore, this research presents a first version of a measurement for bleed and provides insight into how this concept relates to immersion and self-presence.

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**APPENDICES**

**Appendix A.** Measurements of Questionnaire 1 (Intake and Character Creation)

1. What is your discord name? (this information will be used to connect the answers of this questionnaire to that of the answers on the one after the experiment)

2. For how many years have you played Dungeons & Dragons?
   - <1 year
   - 1-2 years
   - 2-3 years
   - 3-4 year
   - 4-5 years
   - 5-6 years
   - 6-7 years
   - 7-8 years
   - 8-9 years
   - 9-10 years
   - >10 years

3. How many hours a week do you roughly spend playing Dungeons & Dragons?
   - <5 hours
   - 5-10 hours
   - 10-15 hours
   - 15-20 hours

- 20-25 hours
- 25-30 hours
- 30-35 hours
- 35-40 hours
- 40-45 hours
- 45-50 hours
- >50 hours

4. If you had to choose, what aspect do you like best about Dungeons & Dragons?
   - The roleplay
   - The mechanics

5. How old are you? (please answer in a round number)
   - Under 18
   - 18-24
   - 25-34
   - 35-44
   - 45-54
   - 55-64
   - 65-74
   - 75 or older

6. What gender do you identify as?
   - Male
   - Female
   - Non-binary/third gender
   - Prefer not to say

7. What is your Nationality? (if you have multiple, select the one you associate with most)
   - List with nationalities based on country

8. What is your highest completed educational level?
   - Less than secondary school
   - Secondary school
   - Community College (mbo)
   - Higher Professional Education (hbo)
   - Academic Higher Education - Bachelor (wo)
   - Academic Higher Education - Master (wo)
   - PhD
   - Doctorate
   - Other
   - Prefer not to say

**Appendix B:** Character creation instructions

*Condition A: Close to self*

For this experiment we want you to connect your character to your own personality. In order to do this, we will ask you to fill in the personality test provided on 16personalities.com. If you go to the website, you can take the test if you go to the top-right corner and click take the test.

Once you're done and have a personality type assigned, please go to strengths and weaknesses. For the character creation, please try and use some of these personality traits in the creation of your character. For example: if the test says you're curious, you could make a curious character. You don't need to use all but try to implement at least one strength and weakness.

*Condition B: Wishful identification*

For this experiment we want you to connect your character to your own personality. In order to do this, we will ask you to fill in the personality test provided on 16personalities.com. If you go to the website, you can take the test if you go to the top-right corner and click take the test.

Once you're done and have a personality type assigned, please go to strengths and weaknesses. For the character creation, please look at weaknesses and choose an attribute you wish you would see more of in yourself. When creating your character, try to implement this. For example: if you want to be more organized, try to make a character that is organized by nature. You don't need to use all given attributes, but try to implement at least one weakness turned into a strength.

*Condition C: Far from self*

For this experiment we want you to connect your character to your own personality. In order to do this, we will ask you to fill in the personality test provided on 16personalities.com. If you go to the website, you can take the test if you go to the top-right corner and click take the test.

Once you're done and have a personality type assigned, please look at the letters and turn them around according to the following table:

*Table 4:* Personality types

| I | E |
|---|---|
| N | S |
| T | F |
| J | P |
| A | T |

So, for example: if your personality test gives you INTJ-A, you turn it around to ESFP-T. Once you have your new personality type, go to the navigation column at the top of the page to personality types and navigate to your new personality type.

Once you're on the page, please go to strengths and weaknesses. For the character creation, please try and use some of these personality traits in the creation of your character. For example: if the strengths give curious as a strength, you could make a curious character. You don't need to use all but try to implement at least one strength and weakness.

**Appendix C.** Measurements of Questionnaire 2 (Reflecting on Experiences)

*Table 5:* Immersion scale

| Modifications made to the original Immersive Experience Questionnaire (IEQ) to create the RPG IEQ (changes in bold). Questions marked with * are taken from Green and Brock (2000) | | |
|---|---|---|
| Original quesion | Modified question | Reasoning |
| 1. To what extent did the game hold your attention? | To what extent did the games over-all hold your attention? | |
| 2. To what extent did you feel you were focused on the game? | To what extent did you overall feel you were focused on the games? | |
| 3. How much effort did you put into playing the game? | How much effort did you overall put into playing the game? | |
| 4. Did you feel that you were try-ing your best? | *Left out* | Without a winning or losing objective, "doing your best" gets a different meaning |
| 5. To what extent did you lose track of time? | *Unchanged* | |
| 6. To what extent did you feel consciously aware of being in the real world whilst playing? | *Unchanged* | |
| 7. To what extent did you forget about your everyday concerns? | *Unchanged* | |
| 8. To what extent were you aware of yourself in your surroundings? | *Unchanged* | |
| 9. To what extent did you notice events taking place around you? | *Unchanged* | |
| 10. Did you feel the urge at any point to stop playing and see what was happening around you? | *Unchanged* | |
| 11. To what extent did you feel that you were interacting with the game environment? | To what extent could you overall picture yourself in the scenes the DM sketched?* | |
| 12. To what extent did you feel as though you were separated from your real-world environment? | *Unchanged* | |

| | | |
|---|---|---|
| 13. To what extent did you feel that the game was something you were experiencing, rather than something you were just doing? | *Unchanged* | |
| 14. To what extent was your sense of being in the game environment stronger than your sense of being in the real world? | *Unchanged* | |
| 15. At any point did you find yourself become so involved that you were unaware you were even using controls? | While playing the game, could you easily picture the events in it taking place?* | |
| 16. To what extent did you feel as though you were moving through the game according to you own will? | To what extent did you find yourself thinking of ways the story could have turned out differently?* | |
| 17. To what extent did you find the game challenging? | *Left out* | This is dependent on the session and not a guarantee for more immersion |
| 18. Were there any times during the game in which you just wanted to give up? | Were there any times during the games in which you rather stopped playing? | |
| 19. To what extent did you feel motivated while playing? | *Unchanged* | |
| 20. To what extent did you find the game easy? | *Left out* | This is dependent on the session and not a guarantee for more immersion |
| 21. To what extent did you feel like you were making progress towards the end of the game? | *Left out* | Sometimes games can go by where the characters don't leave a tavern. Progress is too vague a concept in Dungeons and Dragons |
| 22. How well do you think you performed in the game? | *Left out* | Without a winning or losing objective, game performance gets a different meaning |
| 23. To what extent did you feel emotionally attached to the game? | *Unchanged* | |
| 24. To what extent were you interested in seeing how the game's events would progress? | *Unchanged* | |

| | | |
|---|---|---|
| 25. How much did you want to "win" the game? | *Left out* | There is no winning or losing objective |
| 26. Were you in suspense about whether or not you would win or lose the game? | *Left out* | There is no winning or losing objective |
| 27. At any point did you find yourself become so involved that you wanted to speak to the game directly? | *Left out* | This is a part of the game mechanics |
| 28. To what extent did you enjoy the graphics and the imagery? | *Left out* | N/A |
| 29. How much would you say you enjoyed playing the game? | *Unchanged* | |
| 30. When interrupted, were you disappointed that the game was over? | When finished, were you overall disappointed that the session was over? | |
| 31. Would you like to play the game again? | *Left out* | Players already play the game on a regular basis |

*Table 6:* Self-presence scale

| Modifications made to the original Self-Presence Questionnaire (SPQ) to create the Dungeons and Dragons Self Presence Questionnaire (changes in bold). | | |
|---|---|---|
| Original quesion | Modified question | Reasoning |
| 1. When using your avatar, do you feel physically close to the objects and other avatars in the game/virtual environment? | When playing your character, do you feel physically close to the objects and other characters in the game? | |
| 2. When playing the game/using the virtual environment, how much do you feel like your avatar is an exten- sion of your body within the game/virtual environment? | *Left out* | More VR related |
| 3. When something happens to your avatar's body, to what extent does it feel like it is happening to any part of your body? | When something happens to your character, to what extent do you emotionally experience that it is happening to you? | |

| | | |
|---|---|---|
| 4. When using your avatar, to what extent do you feel like your arm is elongated into the game/virtual envi- ronment through your avatar? | *Left out* | More VR related |
| 5. When using your avatar, to what extent do you feel like you can reach into the game/virtual environment through your avatar? | When playing your character, to what extent do you feel like you are present in the game environment through your character? | |
| 6. When playing the game/using the virtual environment, to what extent do you feel like your hand is inside of the game/virtual environment? | *Left out* | More VR related |
| 7. When playing the game/using the virtual environment, how much do you feel your avatar is a part of your body? | When playing the game, how much do you feel your character is a part of you? | |
| 8. When happy events happen to your avatar, to what extent do you feel happy? | When happy events happen to your character, to what extent do you feel happy? | |
| 9. When surprising events happen to your avatar, to what extent do you feel surprised? | When surprising events happen to your character, to what extent do you feel surprised? | |
| 10. When sad events happen to your avatar, to what extent do you feel sad? | When sad events happen to your character, to what extent do you feel sad? | |
| 11. When upsetting events happen to your avatar, to what extent do you feel angry? | When upsetting events happen to your character, to what extent do you feel angry? | |
| 12. When arousing events happen to your avatar, to what extent do you feel aroused? | When arousing events happen to your character, to what extent do you feel aroused? | |
| 13. How much effort did you put into making your avatar's sex clear to others? | How comfortable do you feel playing your character? | The original question is too similar to question 21, and there was still missing a general question about how comfortable the players feel |
| 14. How much effort did you put into making your avatar's race clear to others? | *Left out* | Measuring too similar to question 17 |

| 15. How important is it for your profile to portray a specific identity for your avatar? | *Left out* | There are not always profiles in the game |
|---|---|---|
| 16. How much do you care about the age of your avatar? | How much do you care about the age of your character? | 1 |
| 17. How much do you care about the race of your avatar? | How much do you care about the race of your character? | |
| 18. To what extent has the experience of using your avatar helped you learn more about your own identity? | *Left out* | Used in the bleed questions |
| 19. To what extent have you customized your avatar to make it look the way it does? | To what extent are you comfortable role-playing the way your character acts? | Putting in questions for the aspects of both appearance and personality, where the original questionnaire had only appearance |
| 20. To what extent does your avatar's appearance represent some aspect of your identity? | To what extent does your character's appearance represent some aspect of your identity? | |
| 21. How much do you care about the sex of your avatar? | How much do you care about the sex of your character? | |
| 22. How much effort did you put into making your avatar's age clear to others? | *Left out* | Measuring too similar to question 16 |
| 23. How much do you care about how your avatar looks? | How much do you care about how your character looks? | |

*Table 7:* Bleed scale

| Questionnaire for Bleed | | |
|---|---|---|
| Question | Type of bleed | Subcategory |
| 1. After the session the emotions I felt during the game often lingered | Bleed-out | Emotions |
| 2. Playing my character has helped me feel more comfortable with myself | Bleed-out | Cognitive |
| 3. I sometimes find it hard to separate what other players do and what their characters do | Bleed-in | Social dynamics |

| 4. I feel like I have to justify which actions are my own and which are my character's when my mood and my character's mood are similar | Bleed-in | Cognitive |
|---|---|---|
| 5. I am grateful when other players clarify which actions are their character's and which ones are theirs | Bleed-in | Social dynamics |
| 6. I started liking a player more because my character likes their character | Bleed-out | Social dynamics |
| 7. When I start a session with a troubled mindset, this often reflects into my character | Bleed-in | Emotions |
| 8. I started disliking a player more because of the dislikable character they play | Bleed-out | Social dynamics |
| 9. When I start a session with a happy mindset, this often gets reflected into my character | Bleed-in | Emotions |
| 10. My character often holds themselves in a similar way I do (e.g. reacting to problems, the way they hold their own in an argument, the way they walk) | Bleed-in | Behavioral |
| 11. When my character is troubled I myself notice that I am feeling more under the weather too | Bleed-out | Emotions |
| 12. When I like a player, my character is quick to like their characters too | Bleed-in | Social dynamics |
| 13. Playing my character helped me develop myself further in real life (in terms of skills such as confidence, leadership or reading social situations) | Bleed-out | Cognitive |
| 14. When I act out what I say I am doing (for example through hand movements), I notice I connect more with my character | Bleed-in | Behavior |
| 15. Playing my character has opened up my eyes in terms of seeing a concept differently | Bleed-out | Cognitive |
| 16. My characters tend to have the same stance on current political topics (such as LGBTQ rights and environmental issues) as I do | Bleed-in | Cognitive |
| 17. I notice the way I hold myself changes after playing my character | Bleed-out | Behavioral |
| 18. When my character is happy, I notice I myself am getting happier too | Bleed-out | Emotions |

**Maxime Scholte Albers** is a lecturer at the University of Amsterdam in the Netherlands. She has a background in Communication Sciences and Media Studies, with a big interest in Psychology. Her research investigates how entertainment media impacts and shapes people's behavior, emotions, and identities, with her current research focusing on Dungeons & Dragons. Next to that, she has an (academically approved) coffee addiction and spends her evenings reading fantasy books.

**Jan de Wit** is an assistant professor at Tilburg University in the Netherlands. His research focuses on the effects of emerging media, such as free-form play, games, and live streaming in domains like education, health, and well-being. He has a background in Human-Computer Interaction and is still looking for the right party of adventurers to put his role-playing theory into practice.

# Concealed Conscientization:
# A Case Study of a Commercial *Dungeons & Dragons* Adventure

**Abstract:** This study presents a case study of a *Dungeons & Dragons (D&D)* adventure that embeds key concepts from Karl Marx and Franz Fanon with the goal of provoking conscientization, the critical awakening advocated by Paolo Freire, for those who play it. The adventure was written under a pseudonym and has been accepted and published by a commercial publisher. Results from a playtest group provide empirical evidence that players received and made sense of the adventure in line with the intent of the author to critique contemporary religious fundamentalism and prompt reflection on colonialism. This research indicates that commercial publication of critical game design specifically within the context of the hegemonic *D&D* rules system has the potential to reach a significant audience.

**Keywords:** *Dungeons & Dragons*, reception theory, Franz Fanon, Paolo Freire, conscientization, game design

**Brian McKenzie**
Maynooth University, Ireland
*Brian.McKenzie@mu.ie*

**Bret Zawilski**
Maynooth University, Ireland
*Bret.Zawilski@mu.ie*

**James Beirne**
Maynooth University, Ireland
*James.Beirne@mu.ie*

## 1. INTRODUCTION

Role-playing games (RPGs), and *D&D* specifically, are potentially transformative, pivotal experiences for their players (Sidhu and Carter 2021). Content, design, and experience are at the heart of transformative play. Yet despite decades of research and gaming, the path from game design to impact, from theory to practice, remains difficult both to map and travel. How can we design game content that is impactful and transformative? How do we know if we are successful? Most importantly, if we achieve transformative game design, how can we make it broadly relevant? This article presents a case study of game design research through game design practice (A. Hook and Coulton 2017) using a *D&D* adventure written under a pseudonym by one of the authors and accepted for commercial publication. The adventure is inspired by and embeds Fanonian and Marxist critiques of colonialism and religion with the aim of achieving Paolo Freire's goal of "conscientization" of players. Our empirical research based on a playtest group for the adventure confirms that *D&D* is a potentially transformative game, and we show that a commercial *D&D* publication can prompt players to critically reflect on important social issues; yet our research also shows that *D&D*'s core feature of a small group of violent adventurers may teach lessons that are incompatible with Freire's ultimate goals for conscientization.

## 2. LITERATURE REVIEW

The research on the potential of RPGs as persuasive and transformative is rich and varied across disciplines and methodologies. However, two axes of research dominate. One is the psychological, personal, and inter-personal benefits of playing RPGs; the other is the ability of RPGs to influence players, and similarly, how players use and make sense of RPGs in the context of their own beliefs and values. A large and growing body of research attests to the social-psychological benefits of playing RPGs. A scoping review in the field of psy-

chology concluded that RPGs were a "complementary tool" for psychotherapy (Arenas, Viduani, and Araujo 2022, 304). Another recent study showed that playing *D&D* for one hour per week over eight weeks had significant benefits to players' wellbeing by reducing depression, stress, and anxiety while increasing self-esteem and self-efficacy (Merrick, Li, and Miller 2024). The authors of another study summarize expansive benefits associated with playing *D&D*: "[it] can aid in friendship and relationship maintenance, mitigation of social anxiety, improved social skills, reducing stress, alleviation from mental health challenges, and providing a connection with others" (Baker, Turner, and Kotera 2022, 3906). The benefits from playing RPGs are thus empirically established, and significant (Sidhu 2024; Walsh and Linehan 2024).

The other axis of research is related but distinct. Researchers here are less interested in the social-psychological benefits of RPGs (or games in general) to the individual, and more interested in the ability of games to influence players' beliefs and values. Ian Bogost's *Persuasive Games* (Bogost 2010) is arguably the most impactful work in this area in the last two decades, but his focus is video games. Numerous publications in this area focus on tabletop, card, and board games while offering insight into game design generally (Flanagan 2009; Kaufman and Flanagan 2015; Flanagan 2021; Kaufman, Flanagan, and Seidman 2016; Freedman et al. 2018; Flanagan and Jakobsson 2023). Researchers also consider how players make use of games. Rather than a game's influence on players, Mark Hines's research examines how players use a *D&D* adventure, *The Tomb of Annihilation*, to "co-construct" orientalist beliefs (Hines 2023).

An interesting aspect of this avenue of research is the variety of disciplinary and methodological approaches. Some research that critiques *D&D* for racist, colonial, and misogynistic tropes (Stang and Trammell 2020; Garcia 2017) or an emphasis on violence (Albom 2021) is based on textual analysis of rules and game mechanics. In contrast, research that seeks to show the utility of games to shape values positively or as a pivotal experience is often empirical (Wright, Weissglass, and Casey 2020; Sidhu and Carter 2021). This variety in approach speaks to the richness of the game studies field, but also the difficulty of assessing impact, positive or negative, and designing impactful games—a challenge made clear in Bogost's self-critique of *Persuasive Games* (Bogost 2021).

The research on games' ability to influence, as distinct from their benefits, is equally concerned with conscientization broadly construed and game design. The utility of games to promote conscientization was apparent almost immediately after the original publication of Freire's *Pedagogy of the Oppressed*. In 1972, William A. Smith advocated using simulation games for conscientization (Smith 1972). Freire advocated an approach to education that would empower learners. "In problem-posing education," he explains, "people develop their power to perceive critically the way they exist in the world with which and in which they find themselves; they come to see the world not as a static reality, but as a reality in process, in transformation" (Freire 1993, 56). Conscientization, according to Freire, empowers people to view their circumstances "as an historical reality susceptible of transformation" (Freire 1993, 58). The ability of games to model social structures combined with the power of the experience of play make them a natural, compelling site for conscientization. Smith's emphasis on mechanics to achieve conscientization foreshadows Bogost's "procedural rhetoric."

The research group Homo Ludens at the Université du Québec à Montréal recently published a list of criteria to assess a game's ability, not limited to RPGs, to contribute to Freireian conscientization or consciousness raising (Homo Ludens 2023). "A conscientization game," they explain, "Is a game that through its ludic, narrative, and aesthetic elements explicitly aims to stimulate a critical consciousness in individuals in situations of oppression and to equip them with tools to facilitate the implementation of communal processes aimed at systemic social change" (Homo Ludens 2023, 6). In addition to offering examples of game design that meet their criteria, Homo Ludens advocates game jams as a form of consciousness-raising activity where individuals can create games, explore solutions, and share experiences. Other researchers also recommend

game jams as a Freireian activity (Myers, Piccolo, and Collins 2019). The application of Freire to game design, particularly as articulated by Homo Ludens, is ambitious and political.

Nevertheless, the reach of games designed for either avenue of research, benefits or influence, tends to be limited. Such games are usually niche and bespoke, designed for a specific audience, indeed sometimes limited to the test subject group itself. For example, two important studies that demonstrate the utility of *D&D* to teach moral reasoning (Wright, Weissglass, and Casey 2020) and as an efficacious activity for improving mental health (Merrick, Li, and Miller 2024) both make use of homebrew adventures. We argue for a different approach, one that embraces commercial publication to reach, and hopefully impact, a large audience.

There is clear empirical evidence for the efficacy of RPGs in general and *D&D* specifically as a site of transformative play. We agree with Dimitra Nikolaidou that the unique, immersive experience of *D&D* game sessions, of co-creating narratives, "influence participants at an even more fundamental level than other storytelling media" (Nikolaidou 2024, 163). In addition, *D&D* holds a hegemonic position in the industry and in its raw number of players (Griepp 2024; Given and Polkinghorne 2024). Yet the game and its players are surprisingly accessible to independent designers. In January 2023, Wizards of the Coast (WotC) released its System Reference Document (SRD 5.1), a collection of rules for *D&D*, under a CC-BY 4.0 license. In April 2025, WotC released an updated SRD 5.2, also under CC-BY 4.0, that includes material from the new *Player's Handbook*. The SRD serves as the basis for many commercial so-called third-party publishers to produce RPG content for *D&D*. The SRD, combined with two self-publishing platforms, DriveThruRPG and DM's Guild, offers opportunities for independent designers to reach a vast audience of gamers. Success on these platforms can serve as an entrée to the realm of commercial publishers, as was the case with the author, under a pseudonym, of the adventure for this research. In addition, several independent systems use the *D&D* rules system in a different setting or game because of the ubiquity of players familiar with its rules. This article takes a "research through design" approach to argue that commercial *D&D* publications afford critical game designers the opportunity to maximize their potential audience and thus the impact of their games.

## 3. STEALTH DESIGN

Our work is informed by the "stealth interventions" and "embedded design" approach articulated by Geoff Kaufman, Mary Flanagan, and Max Seidman (Kaufman, Flanagan, and Seidman 2021; Flanagan 2021). Their approach makes use of three strategies: intermixing, obfuscating, and distancing. For the purposes of writing a *D&D* adventure, the latter two strategies are most applicable. Obfuscating hides the persuasive intent of the game and its designers. A key strategy here is to use a genre, as they explain, "whose associated goals or expectations do not include the aim to change players' attitudes, beliefs, or behaviors" (Kaufman, Flanagan, and Seidman 2021, 79). *D&D* players have an expectation that their play experience will be inclusive and allow for diversity. WotC's "Commitment to Diversity" states, "One of the explicit design goals of 5th edition *D&D* is to depict humanity in all its beautiful diversity by depicting characters who represent an array of ethnicities, gender identities, sexual orientations, and beliefs" (D&D Official 2020). However, it is unlikely that players would expect a *D&D* adventure to introduce concepts such as false consciousness, organic intellectuals, structural inequality, or other socio-political ideas. That is, WotC supports inclusivity but that does not mean *D&D* adventures encourage players to explore the causes or consequences of intolerance. More research is needed on player expectations about fantasy worlds. Recent WotC adventures consist of depoliticized fantasy realism—dragons but not slaves, despots but not fascists. As Mason argues, WotC articulates "a conservative status quo, with a thin veneer of diversity, equity, and inclusion" (Mason 2024, 174). The *D&D* adventure is thus a suitable genre for obfuscation.

Distancing is the other embedded design strategy that is felicitous for writing critical *D&D* adventures. This refers to the psychological distance, a "safe space," between players and any sensitive topics. "By sep-

arating players from their real-life identities and prior knowledge, beliefs, and experiences," explain Kaufman, Flanagan, and Seidman, "Persuasive games can effectively circumvent players' reticence or reluctance and enhance the game's transformative potential" (Kaufman, Flanagan, and Seidman 2021, 83). Indeed, distancing is at the heart of RPGs though the "player-character" (PC), the fictional character the players roleplay. PCs are an opportunity for players to explore identities; PCs allow both distancing from and experimentation with a player's own conception of self, values, and orientation (Bowman and Schrier 2018). They further recommend two mechanisms to achieve distancing: hypotheticality and fictionalizing. Both clearly are ideal for RPGs. RPG settings and adventures are a form of speculative fiction that can be used to test hypotheticals, e.g., what are the consequences for a society if magic is common? RPG settings and adventures also fictionalize—depict metaphorically or fantastically—real issues and events. For example, the Chernobyl disaster could be modelled as a magical vortex collapse or interplanar energy leak in a fantasy realm.

Related to the idea of embedded design is the concept of "reskinning" or remixing. This refers to the process whereby a designer or Game Master (GM) translates or imports a compelling character or situation from another setting into a game (Shea 2018). In homebrew games a character might be taken into a game whole cloth. As a game master, one author has, on more than one occasion, reskinned Colonel Walter Kurtz from *Apocalypse Now* and used some quotes verbatim. For example, when in a recent game the final boss told the PCs, "You have a right to kill me. You have a right to do that. But you have no right to judge me" (Coppola 1979). Crucially, reskinning can extend, and commonly does, to narrative and plot structure. For example, a GM for a science fiction RPG could reskin the classic movie *The Blues Brothers* as an adventure that finds the PCs in a desperate race to save a foundling hospital for exoplanet orphans from foreclosure. Reskinning allows the importation of famous works of fiction, historical events, moral parables, and much more, in a disguised, "fantasized," way. The official *D&D* adventure *Storm King's Thunder* is a remix of *King Lear*.

An example that illustrates a missed opportunity for reskinning is Premeet Sidhu's use of George Orwell's *Animal Farm* (Sidhu 2023). Rather than reskinning the book, Sidhu gamified it. She re-created the book with close fidelity to its original content as a RPG adventure using the *D&D* rules system. The characters, setting, and the plot approximates the book. In other words, the players know they are playing the book. Sidhu was interested in using a game to investigate player agency, transgression, and death, and her playtest results indicate the game was successful in this respect (Sidhu 2023). Of course, *Animal Farm* itself is an exercise in fantasizing and reskinning. Yet, imagine *Animal Farm* reskinned with embedded design as a fantasy *D&D* adventure with the same themes but also with the intent of engaging PCs with the broader critical ideas raised by the book: Weberian institutionalized charismatic authority and Tocquevillian continuity. We can reimagine the character Napoleon reskinned as a Lawful Evil paladin non-player-character (NPC) while Snowball is a Neutral Good NPC. The farm can be reskinned as a remote underground city and we could change the Windmill to a lift apparatus to the surface. The designer who reskins *Animal Farm* in this way would follow plots and events, and write the same NPCs, but they would be distanced and fictionalized.

Flanagan's empirical research provides evidence of the effectiveness of these strategies. For example, she shows that fictionalizing or "activating fantasy' creates psychological distance for players. This distance leads to abstraction and helps players "see the big picture" rather than make a judgement in response to objects and ideas recognized from their everyday experience (Flanagan 2021, 286). A fantasy game developed by Flanagan, *The Enchanter*, successfully increased self-confidence in women scientists (Flanagan 2021).

## 4. RECEPTION THEORY

Central to our research is the question of how adventure writing converts to play, to player experience, and to player meaning-making. We are interested in the nature of transmission, the conversion of author intent to a *D&D* adventure to player understanding. This is, of course, the crux of persuasive gaming and critical

game design. As Flanagan explains, "While it is true that messages are a part of a game's story, messages that a designer thinks are in the game may not actually be there, or may not be read/experienced as intended" (Flanagan 2021, 284). There is a strong structuralist component in the field of persuasive gaming influenced by classic theories of communication such as Jakobson's model of linguistic functions (Jakobson 1960). The Big Model developed by Ron Edwards at The Forge sought to organize and understand the experience and nature of tabletop role-playing games using a variation of frame theory as a means of designing better games (White 2020). Bogost's influential concept of "procedural rhetoric" was an attempt to convert game mechanics into persuasive outcomes, although he subsequently acknowledged its limitations (Bogost 2010; 2021). Structural theories are important, particularly for highlighting material conditions of play, but more recent research has focused more closely on player subjectivity and experience.

We are interested in using embedded design to shift the attitudes of players, but we are also interested in recognition. Do the players recognize the intended meanings, "the moral of the story", and tropes embedded in a *D&D* adventure? Recognition and identification of themes and tropes is a common strategy of scholars who criticize racist, misogynistic, or colonial tropes and themes in games. Why not turn this on its head? Why not use recognizable tropes as a component of critical design? We can then better understand if the players recognize the proxies and themes in the adventure and how the game play session itself affords an opportunity for conscientization. Here we are following the work of Stuart Hall who argues that messages coded in the "dominant cultural order" will likely be decoded as such (Hall 1973).

The question of authorial intent, reader reception, and the nature of texts is central to literary theory. The "postmodern turn" in the 1980s landed several "critical hits" on classical reception theory. Stanley Fish's 1980 book *Is There a Text in This Class?* argued against the existence of any determinate meaning for language (Fish 1980). Language, according to Claude Lévi-Strauss, consists of "floating signifiers"—words with indeterminate meaning (Mehlman 1972). Readers are agentic and subjective, and words are indeterminate. To make matters worse, according to Barthes, the author is dead: their intentions are inscrutable and cannot be inferred from context or biography (Barthes 1984). Postmodern theory elevated the ontological status of a text. "The artwork," explains the theorist Brenkman, "Exceeds its source as the expression of its creator and its destination as an expression for its recipient" (Brenkman 2020, 111).

The nature of a text is also central to scholars who study RPGs. The game studies scholar, like the literary or art critic, confronts the complex relationship between author, audience, and text. One perspective is to consider the game session itself as a text. This creates complex methodological and theoretical issues. "The actual text of a [tabletop role-playing game] session is ephemeral," explains Cover, "It exists in the moment of face-to-face interaction and then vanishes" (Cover 2010, 175). If we treat a RPG session as a text then as Harviainen explains, "The base text is not truly accessible and the interpretations will be subjective and incomplete if and when they are explicated to a researcher" (Harviainen 2008, 75). Solipsism, however, is a risk here, and numerous critics highlight this tendency in postmodern thought (Kien 2021). Nevertheless, contemporary literary theory—even the context of postmodern theory—offers rich analyses, tools, and theories for game studies (Jara and Torner 2018). Close readings of adventures (Hines 2023), hermeneutical analysis of game sessions (Harviainen 2008), and genre analysis (Cover 2010), are just a few examples of how researchers have deployed the full range of literary theory to the study of RPGs.

Symbolic interactionism offers an important theoretical perspective for the study of role-playing games reception (Williams et al. 2018). This theory complements the move in media studies to thread a path between semiotic relativism and reception determinism (Ang 2013). As Fine explains, "central to this approach is the assertion that human beings reside in finite worlds of meaning, and that individuals are skilled in juggling these worlds" (Fine 1983, 181). Interactionism holds that individuals make *practical sense* of the media they use (Eichner 2020). Audiences recognize "action-guiding themes" in media that correspond to their *lifeworld*, a concept from phenomenology that holds that common beliefs and meanings operate inter-

subjectively, and also across and between societies (Beyer 2003; Eichner 2020). Recognizable, relatable themes rather than similarities or proximity in culture allow for the use and consumption of media, and explain their appeal, globally and locally. As Eichner explains, "When the topic depicted is not a central theme in the viewers' lifeworlds, it will be disregarded or rejected during the reception process" (Eichner 2020, 117). Different audiences may focus on or be interested in different themes, but the themes themselves have cross-cultural appeal (Eichner 2020). The benefit of this perspective is that it affords epistemological and empirical grounds for researchers to speak to the fidelity of the intended meaning in an author's work and its corresponding reception by an audience (Bryman 1999).

The implications of symbolic interactionism for game design in the context of global late-stage capitalism can be pessimistic. Baeza-González offers a bleak assessment of video game production in Chile. "Chilean games are not unique," he concludes, "nor do they present authentic traits that characterize their games" (Baeza-González 2021, 51). Rather, Chilean game designers make games based on global cultural tropes to satisfy the core markets of the Global North. The strength of the Chilean video game design industry resides in its ability to satisfy consumers' love of dominant game franchises (Baeza-González 2021). *D&D* not only represents the core market of the Global North, it is a hegemonic rules system, released under a CC-BY 4.0 license, for tabletop role-playing games. The challenge thus becomes whether game designers can work within this dominant system subversively, capitalizing on global cultural tropes to embed critical ideas.

## 5. ADVENTURE DESIGN

The *D&D* adventure that is the subject of this study embeds key ideas from Franz Fanon's *The Wretched of the Earth*. The author is specifically interested in Fanon's argument for the necessity of violence, the role of religion in abetting colonial oppression, and the idea that colonial subjects must liberate themselves rather than rely on typically white anti-colonial allies originating in the colonial powers. The adventure seeks to subvert the *D&D* binary between heroic, "civilizing" PCs and savages, some in need of uplifting, others in need of killing (Justice 2024). Roland Barthes's explanation of the Exotic was key in how the author framed the NPC factions. Western culture, argues Barthes, creates "...an Orient which is exotic in form, while being in reality profoundly similar to the Occident..." (Barthes 1972, 94). For Barthes, exoticism is a means of stripping colonial subjects of their histories and making them a "pure reflection of the West" (Barthes 1972, 96). In practical terms for game design, carefully crafted factions can serve as vectors to introduce critical concepts and narratives into an adventure. An "exotic" faction possesses "authenticity" and is recognizable by players while at the same time psychologically distanced in line with "stealth" strategies.

The main faction in this adventure is based on a well-known mythological European creature. They are written as multi-layered signs: primitives, savages, and religious fundamentalist. Their religious fundamentalism results in them being duped by imposters posing as prophets of their deity. This imposter faction is inspired by *rudos* from the Luchaverse. In the good/evil dichotomy of the Luchaverse, *rudos* are the bad guys. Although a *rudo* may be a complicated, transgressive figure, their morality is transparent. *Rudos* rely on deception and brute force; from a performance perspective the *rudo* strives to make the audience angry and incite their disapproval (Levi 2008). This faction marks the religious faction as victims—they have been deceived by the *rudos* and are clearly victims. The presence of a faction in the role of *rudos* reinforces the PCs' identities as heroes (*técnicos* in the Luchaverse).

Prompted by reports of raids on "civilized" lands by "savages," the PCs travel to the location at the behest of a powerful ruler. En route there is an encounter in a village designed to subvert the concept of "civilized" and instead depict the "advanced" society as one of servile dependence. The denizens of the "advanced" society are more primitive in outlook than the factions encountered later. Upon arrival at the main location of the adventure, a number of encounters introduce the factions. The interaction between the factions is key

to the adventure plot. It is clear to the PCs that the religious fundamentalism of the main faction allows them to be taken advantage of by the imposters. A small group of the religious faction proclaims them as imposters and breaks away to begin an asymmetrical campaign to eliminate the imposters and the members of the religious faction who follow them. The PCs either ally with the separatists or work independently pursuing the same goal, the elimination of the imposters. Ultimately the separatist faction will attempt to kill the PCs. While the imposters and their followers are heretical, the PCs represent colonizers, an equal threat. The betrayal, if allied, or attempted murder, if working independently, occurs after the defeat of the imposters and concludes the adventure.

The design of the adventure relies on five elements to embed the critical ideas: plot (including encounters), read-aloud text, player handouts, instructions to the Dungeon Master (DM), and NPC dialogue. The adventure author used these elements conscious of the contested authority of adventure writers which falls between the agency and autonomy of players and DMs and the canonical authority of the system (Hammer 2007).

The creation of the adventure for this study thus comprises three strands: reception theory, critical social theory, and game design. The ultimate goal was to produce an adventure that would critique the influence of religion and challenge player assumptions about the status of "heroic liberators." Freireian consciousness raising requires that individuals apprehend and understand the conditions of their own oppression. In other words, rather than seeing the impact of religion on an NPC faction, for consciousness raising to occur, the adventure would need to prompt players to see the impact of religious fundamentalism in their own societies. In addition, the subversion of the civilized/savage and liberator/victim dichotomies present in the adventure would also prompt players to reflect on their own assumptions.

## 6. PLAY SESSIONS AND DATA COLLECTION

In addition to the above elements of game design and theorization, our research builds upon a consideration of tabletop role-playing games—and *D&D* in particular—as transformative experiences (Sidhu and Carter, 2021). In order to better understand the effects of a commercialized adventure focused around Fanonian and Marxist themes, we facilitated and observed players as they interacted with this material in *D&D* play sessions. We employed a constructivist grounded theory approach (Charmaz 2017) in the development of our research, understanding the primary body of inquiry would be co-created through the participant observation of gameplay, and this stage of the project was guided by three questions:

- How do players recognize or fail to recognize critiques of colonialism and religion when exposed to embedded Fanonian and Marxist ideologies?
- To what extent would this recognition or lack of recognition influence the choices made by players within the space of the game?
- Does ideological game content convert to meaning-making beyond the gaming table (Sidhu and Carter, 2021)?

Since we were interested in the effects of ideological content on players engaging with commercialized *D&D* adventures, it was important to locate individuals with prior experience playing *D&D*. The Games Society at Maynooth University is one of the largest student-operated organizations on campus and regularly facilitates *D&D* campaigns. Upon receiving ethical approval, we sent invitations to the members of the Games Society, and over the next two months, we interviewed and observed five participants. These individuals took part in a pre-game interview, game sessions that were observed by the researchers, and a post-adventure focus group.

The adventure itself was divided into three play sessions that took place over a month. Players had all previously had experience playing in fifth edition campaign settings, though their individual levels of experience differed. During the game sessions, one author DMed the adventure while another took notes and monitored audio recording equipment.

Observations from throughout the three game sessions were used to inform a focus group interview with the players after the conclusion of the adventure. In this focus group, we asked participants to reflect upon their experiences over the course of the three play sessions and later used this session to identify places in the adventure that seemed particularly impactful for the participants. Once the data collection process was complete, transcriptions of interviews and play sessions were read alongside recorded notes and observations. Of particular interest were player reflections on in-game moments where they encountered Fanonian and Marxist themed content, the results of which are shared in the following sections.

## 7. RESULTS AND LIMITATIONS

As *D&D* is mediated entirely through language, both written and spoken, it becomes imperative to approach the study of the game through the lens of language. At the same time, materialist considerations must be taken into account, recognizing the situated space within which the game is taking place. And it is true that "qualitative research is heavily invested in language practices: interviews, fieldnotes, focus groups…But conventional forms of analysis frequently find the bodily entanglements of language troublesome or trivial" (MacLure 2013, 664). Future research might pay more attention to the physical, bodily interactions of participants in this style of game, and a future project may benefit from video recording to better capture participant reactions that otherwise might go unnoticed. After all, "transcripts seldom record what eyebrows, hands, shoulders or crossed legs are doing" (MacLure 2013, 664).

Additionally, careful attention was given in the game to avoid overt prompting on the part of the DM. Analysis of the transcripts of play sessions confirmed that the DM offered no cues or prompts to promote recognition of the tropes and factions. Our intentions were to give students a chance to naturally react to the content of the campaign without overtly signaling any specific political or ideological undertones within the campaign itself. However, a future study may benefit from having an outside DM run the material to further ensure that participants are responding as naturally as possible. Building on Hammer's research, it is also worth considering the role that the DM plays in rearticulating adventure content since *D&D* is ultimately a participatory activity (Hammer 2007). In some ways, the DM of a commercial adventure functions much as a technical communicator, taking material presented through game books and rearticulating it for a new audience. As Shanmugaraj et al. note (Shanmugaraj, Wolfe, and Wodzak 2020), any time an individual paraphrases or interprets texts, they are engaging in a knowledge transforming act. As such, the interaction of the DM with the game material is another promising site of future inquiry when considering games as transformative experiences.

The research of Guttorm et al. on the participatory nature of dance also applied to *D&D*, in which "encounters…consist of movement, talking, and writing in various combinations and ways emerging/(im)materializing/(resulting) in scattered words, scattered papers, scattered thoughts…and lots of uninhibited utterances, laughter, fooling around, and jokes" (Guttorm et al. 2016, 417). The players knew each other from the Games Society but had not played together previously. One difficulty this presented was that play style and expectations, the creative agenda of the players, differed. One player was often adversarial to other players and the DM. Only experienced DMing prevented player-vs-player (PVP) combat during some play sessions.

In using *D&D* as a site for critical design, an author faces two key constraints. The first is that combat is a key expectation for players of this game. An adventure that downplays this pillar of the game would likely fail to meet player expectations. Another constraint is the importance of the PCs as heroes. Adventures give

the PCs the opportunity to be heroes and do heroic things. The adventure for this game subverted this role when the NPC faction refused to view the PCs as liberating heroes, viewing them as dangerous colonizers to be killed instead. Subverting this expectation without creating an unsatisfactory adventure was difficult. In the case of the playtest group, the players accepted the betrayal as an element of this faction's religious fundamentalism. In addition, the PCs defeat the imposter faction, and this provides the heroic achievement in clear terms, as when the *técnicos* defeat the *rudos*.

The empirical results are encouraging. In particular, they confirm the validity of the interactions framework of reception. The results show that authorial intent can convert to player reception at the table. Discussing the main factions, a player from Spain made this comparison: "The way the [imposter faction] treated the [NPC faction] was kind of like, well, how the Spanish treated Latin America in colonization." When discussing the NPC faction's views of the PCs, another player who is involved in student government explained that the NPC faction was correct to be skeptical; the PCs were not, in fact, helping for selfless reasons. This player compared the role of the PCs to university administrators who act, in their view, for personal gain and "to look less bad," rather than from ethical principles or to serve the best interests of the students. The adventure author's intent with the village encounter was to present its inhabitants as poverty-stricken but also wholly lacking in class consciousness. Two players compared the village inhabitants to "nice Americans" who were attached to an abstract concept of "freedom" while living in squalor and ignorance.

Regarding the specific targets for critical reflection, the adventure did prompt reflections on religion:

**Author 1:** Did the [NPC faction] remind you of anyone?

**Sorcerer 2 PC:** Republicans.

**Author 1:** Republicans?

**Wizard PC:** Yes.

**Sorcerer PC:** They're crutching on their religion as an excuse to cause harm to others. And if they don't like them, they just make up something like "God's told me you suck therefore you must die."

**Wizard PC:** Yeah.

**Fighter PC:** Using God as an excuse.

**Fighter PC:** Very xenophobic and hyper religious. They use their religion as a crutch.
Before you were a fascist you were a bully and an arsehole.

**Author 1:** Did the religion of the [NPC faction] hurt them or help them in their struggle?

**Sorcerer 1 PC:** So yeah, for the [NPC faction] it's good to have something to cling to when they're in the prison—their Christ or something that makes them stick together. But once we get past that step, taking actions for the good-being of a religion instead of people, it's plain stupid.

**Wizard PC:** It hurt them. They believed [the Imposters] solely because they said they were from their gods. It's like if they weren't that strong into religion, 90% of them would have been rebels.

For conscientization to occur, an individual must come to grips and be aware of the source or cause of their oppression. In Ireland, 94.6% of public primary schools are governed by a religious ethos (88.4% Catholic, 6.2% Protestant and other religious ethos) (Department of Education 2024). In the United States, the Supreme Court under Roberts has found in favor of religious organizations 83% of the time, compared to 50% since 1953 (Epstein and Posner 2022). As religiosity declines in many European countries (Nadeem 2022), the religious elite nevertheless remain a powerful oppressive force in the lives of billions. Our playtest showed that the religious fundamentalism of the NPC faction was read as intended, as analogues to contemporary fundamentalists.

## 8. COMMERCIAL CONSCIENTIZATION?

Commercially published games are an underappreciated medium for this type of research. It might be thought that the dictates of commercial publishing, in which creations are created or subsumed within relations of global capital accumulation, could preclude them from offering moments of genuine critical experience. Also, given the constraints inherent to the use of a popular commercial game system or adventure, which comes with its own discourses, lore, mechanics, and expectations of social behavior, it might be thought researchers should use a bespoke game tailored to the audience, or at the least something underground. Yet across media, examples of effective critique being offered by commercial publications abound. Moreover, Fanonian and Marxist critique, whose transmission is under study, itself suggests that it is important to rely on the media terrain–both technical and discursive–provided by the very structures they critique. Commercial games, therefore, both can and should be explored as a site of conscientization.

The 2023 film *Barbie* offers a salient case study. The film has patriarchy as a central theme, but given Barbie's longstanding role as an archetype of capitalist patriarchy, its reception was predictably contested both popularly and academically. One student journalist aptly summed up the debate: "Barbie: Feminist Masterpiece or Capitalistic Greed?" (Boskovic 2023). Robert Luke Naylor lauded the film's "verve" and "nuance", comparing it to the anarchist exploration of utopia in Ursula K. Le Guin's *The Dispossessed*, and noting

> one character describes, like Karl Marx, how Ken's new exploitative society has 'sown the seeds of its own destruction'.... Of course, feminist critiques such as these exist in all sorts of different forms of big-screen fiction, but Barbie shows a system of oppression being systematically dismantled. It is dynamic and full of hope. (Naylor 2023, 1)

Naylor suggests that the critical storytelling of this film gives it a realism (in spite of its fantastic premise) that makes it a powerful tool for not only teaching and research, but also social change.

Amy La Porte and Lena Cavusoglu, on the other hand, situate *Barbie* in light of Mattel's other recent attempts to rehabilitate Barbie by representing a greater degree of diversity in their toy lineup. While acknowledging the benefits of such representation, they note that it occurs within a framework of conventional beauty standards, displaying "a clear preference for thinness" (La Porte and Cavusoglu 2023, 5). Similarly, they suggest that despite *Barbie's* feminist themes, it fails to fundamentally challenge patriarchy. The film's conclusion, in which Barbie visits a gynecologist, could be interpreted as "underscore[ing] the significance of reproductive health and broach[ing] a typically taboo topic," but they note the potential problems with reducing women's identity to genitalia (La Porte and Cavusoglu 2023, 7). "At its core, *Barbie* is undisputedly an advertisement for a socially problematic doll," a cynical money-grab from an audience willing to pay for its themes (La Porte and Cavusoglu 2023, 9).

However, the question of whether conscientization occurs is a different one than whether its instigating context–whether it be a film, game, or workshop–can be classified as radical or cynical. A context does not

need to be purified of all problematic elements to still have subversive potential. It might take a long time for a critical consensus to form on *Barbie*, if indeed this ever occurs, but it is not necessary to wait until the question is settled to look for conscientization. Since conscientization involves a transformation of consciousness that empowers people to understand how their reality can be transformed, it also leads to changes in behavior and is therefore subject to empirical study. In the case of *Barbie*, Senechel et al. note the established relationship between health behaviors and popular media, finding that "In the week following *Barbie*'s release, there were large increases in the national online search volume for terms referring to gynecologists (51.3%; 95% CI, 31.8%-72.1%; $P < .001$) and gynecologist definition (154.1%; 95% CI, 68.2%-304.5%; adjusted $P = .03$)" (Senechal et al. 2024, 2), while noting that there was no other apparent reason to explain such an increase. This suggests that *Barbie's* gynecology scene might have led to an increased interest in and awareness of gynecological care. While the authors caution that this evidence does not of itself demonstrate an improvement in health access or outcomes, it is worth noting that the conscious act of seeking out further information is itself a change in behavior. Regardless of the film's commercial nature, or its potentially compromised narrative, it therefore seems to have facilitated a notable moment of conscientization.

If potentially compromised sites of mass culture can lead to conscientization, there are also explicit reasons why they ought to be exploited. In his 1959 study on the Algerian revolution, in which he was an active participant, Fanon noted that "Radio-Alger, the French broadcasting station which has been established in Algeria for decades... is essentially the instrument of colonial society and values," (Fanon 1965a, 69). While the cost of radio sets meant that their ownership was heavily concentrated among European settlers, he notes that out of a passive opposition to the proliferation of colonial cultural norms, even those Algerians who could have afforded to acquire one often did not. Meanwhile, he argues, the French cultural content discouraged settlers from "'go[ing] native,'" (Fanon 1965a, 71). In sum, the radio in Algeria played an important dichotomizing function in colonialism's cultural structure, keeping the French French and (via their abstention) Algerians Algerian. In other words, it served as a bulwark against conscientization. It also played an important role in the dissemination of information to Europeans about threats to their rule, thereby further preventing social change (Fanon 1965a).

Revolutionary Algerians naturally developed their own information networks with older technologies like word of mouth and newspapers, but these were subject to technical limitations such as censorship, excessive localism, and surveillance. The revolutionaries created a counterpart to Radio-Algiers, The Voice of Fighting Algeria (*La voix de l'Algérie combattante*), and facilitated rapid and widespread dissemination of radio sets among an increasingly interested populace (Fanon 1965a). This not only had the effect of transforming the radio into an instrument of liberation, but as Algerians began to broadcast not only in Arabic but in French they "created confusion and disorder in [the occupier's] defense system," (Fanon 1965a, 91). The revolutionaries authored the content of their messages, but their dissemination was dependent on the technical and discursive medium of the colonists. For Fanon, The Voice of Fighting Algeria was therefore a crucial step forward in the transformation of consciousness and society on a national and international scale.

The scale of our study of conscientization is clearly much smaller than the cases of either *Barbie* or The Voice of Fighting Algeria, but the principles are the same. The fact that mass media can be subject to political and commercial constraints does not preclude conscientization. Indeed, mass media provides a speed and range of dissemination which cannot be paralleled by other media. Thus, it has a significance for conscientization which other media do not. Authors and activists who wish to facilitate conscientization will surely pursue commercial publication, even as they will also use other means. Furthermore, since audiences inevitably bring their own meanings to texts, appropriating and making use of them in their own way, the possibility for conscientization remains open even where it might not be intended by authors. In the realm of game studies, the clear analogue to the juggernaut of Hollywood is indisputably *D&D*, which in addition to official content, has a thriving and variegated market of third-party publishers who employ the discourses

of the game system for their own ends. Exclusive analysis of systems or texts that are independent, noncommercial, private, or homebrew—in other words, that have limited distribution—overlooks a crucial site of conscientization.

## 9. CONCLUSION

This study offers *prima facie* evidence that critical game designers can successfully publish commercial, mass distributed works that embed social theory and are impactful. The implications for this research suggest that more attention be given to working within established game systems with broad player bases. There are other lessons. Designing and writing a *D&D* adventure with critical intent and getting it accepted by a commercial publisher is challenging. Specifically, the strategies outlined by Flanagan, Kaufman, and Seidman (Kaufman, Flanagan, and Seidman 2021; Flanagan 2009; Kaufman and Flanagan 2015; Flanagan 2021) proved essential not only for the adventure's impact on players but also for acceptance by a commercial publisher. By deploying these strategies we avoided the fate of Graeme Barber's adventure in the official book Candlekeep Mysteries where WotC removed and edited content that sought to subvert racial and colonial tropes (Carter 2021). Our adventure was published as written. The designer must write a *D&D* adventure that meets the expectations of commercial publishers and the player base itself. The adventure must be fun, novel, challenging, and composed with absolute fluency in the rules system.

In one key respect our research shows that *D&D* is incompatible with the Freireian approach to consciousness raising. The key goal of education and liberation for Freire is to transcend the dialectic so that the oppressed does not become the new oppressor. Awareness of the systems that perpetuate oppression is the key goal of conscientization, and how the dialectic can be broken (Homo Ludens 2023). Violence, for Freire, is the primary tool of the oppressor, not the oppressed. The oppressed may respond violently, but the goal is different: "Consciously or unconsciously, the act of rebellion (an act which is always, or nearly always, as violent as the initial violence of the oppressors) can initiate love" (Freire 1993, 30). Community, solidarity, unity, cooperation, and empathy underlie the actions of the oppressed. Without these animating the oppressed they are "mere objects of the revolutionary activity..." (Freire 1993, 144). For Fanon too, violence is an essential early feature of revolutionary praxis. The emphasis on violence in *D&D* generally and in this adventure specifically which sees an NPC faction embrace Fanon's observation that "For the native, this violence represents the absolute line of action," risks neglecting the longer-term visions of revolutionary praxis he and Freire articulated (Fanon 1965b, 85).

Consider the typical *D&D* adventuring party. It consists of a small vanguard of outsiders who use violence to overthrow a regime. This model of praxis is Blanquist rather than Freireian (Blanqui 2009). A Gramscian organic intellectual is a rare background for a *D&D* PC. One avenue of further research would be to design a low-level adventure with "session zero" guidance (an introductory meeting where the players and DM make characters and agree on goals) to model the PCs as emergent organic intellectuals. This adventure showed evidence of achieving conscientization in the players, but there was an unresolved tension between Fanon's emphasis on the necessity of violence and Freire's emphasis on community and solidarity. This tension is possibly resolvable. Fanon, for example, tells us, "Violence alone, violence committed by the people, violence organized and educated by its leaders, makes it possible for the masses to understand social truths and gives the key to them" (Fanon 1965b, 147). However, in our case, the adventurers were, from the outset, outsiders with no connection to "the people." This was a conscious design decision to problematize the white savior-as-adventurer trope. However, another adventure could be written that more closely invests and relates the PCs to an oppressed group. This single *D&D* adventure does not align with all the criteria for a Freireian game proposed by the Homo Ludens research group, in particular the importance of community (Homo Ludens 2023). However, we are confident that another adventure or, more easily, a campaign (a series of linked adventures), could achieve this goal.

In addition, the question remains whether the players in the test group were oppressed in the classic Freireian sense. "The oppressed," he contends, "having internalized the image of the oppressor and adopted his guidelines, are fearful of freedom" (Freire 1993, 21). Conscientization in this case means apprehending not only the source of oppression but also one's own agency and reflexivity. The author specifically wrote the adventure in the hopes that it would be played by religious players. The strategy of using the exotic to embed the critique of religion is central to its design. However, we were unable to control for religiosity in the test group and there was very little. Thus, the players recognized the oppressive role of religion but the praxis was Fanonian and Blanquist not Freireian. A playtest with a group of religious players would be required to test for a more Freireian impact: *bleed-out*, rather than *bleed-in* (Bowman, Diakolambrianou, and Brind eds. 2024).

A RPG adventure without critical theory and intent is a missed opportunity. Tabletop role-playing games are an amazing site for theoretical experimentation. Whether it is the nature of morality (Mussett 2014; Hummel 2014) or, as in the case of this adventure, questions relating to colonialism, TTRPGs are a unique site to explore, model, enact, and speculate about history, social theory, and philosophy. The Creative Commons SRD offers a powerful opportunity for critical designers to work within the hegemonic *D&D* landscape. We hope this study encourages more critical designers to embrace commercial publication.

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**Brian McKenzie** is an Associate Professor at Maynooth University. He has PhD in history from Stony Brook University. He is subject leader for Critical Skills, Maynooth University's First Year Seminar, and a co-creator of Maynooth University's microcredential 'Writing for Role-Playing Games: Narratives, Adventures, and Worldbuilding.' His research interests are in game studies, the pedagogy of multiliteracies and digital technologies, and Wikipedia.

**Bret Zawilski,** Ph.D., is a Lecturer of Critical Skills at Maynooth University, where he teaches courses on writing and scientific communication. He's an avid player of indie TTRPGs and his academic research investigates writing processes, knowledge transfer, and multimodal pedagogy. He has a background and experience in writing and technical communication.

**James Beirne** holds a PhD in Social & Political Thought from York University. His doctoral research examined the transformation of property relations in Ireland through dispossessive colonial practices and the construction of the political apparatus which mediated these processes. Current research interests include political subjectivity, the relationship between oral and literary cultural spaces, theories of the state, and political economies of colonialism and fascism. He currently teaches in Critical Skills at Maynooth University.

# On the Other Side: Analyzing Identity and Crisis Through Ludic Inquiry

**Abstract:** This study utilizes a form of scientific methodology, *ludic inquiry*, to analyze a role-playing case study. Ludic inquiry considers games as experiential artistic research questions, and player behavior as a form of research data responding to that question. Thus, it is an art-scientific methodological form, with a unique capacity to approach significant topics of meaning. Games feature interactive fictions, whose rules and procedures can rhetorically be analogized to research questions, where players' actions, thoughts and feelings within the fiction form a type of research answer of the experiencing and meaning-making they as individuals have within the gameplay. Live action role playing games in particular feature ambiguous moments where players infer boundaries and create their own norms and rules, demonstrating an even deeper insight into their reactions to the questions asked within the game. This methodology was applied in the creation and analysis of the artistic live action role playing game *On the Other Side: Who We Become After We Move Abroad*, which intentionally asks the question, "How does identity change as a result of experiencing a crisis?"

The game represents a double crisis, migration and fascism, and simulates how changes in the socio-material context affect personality traits. Our findings suggest that the characters' familial relationships were a response to crisis throughout the game, playing a strong role in significant events such as worker riots, choosing who to save from fascist violence, and the bending of the game's rules. The results also indicate that the experience of crisis depended on one's level of comfort—a crisis was only experienced when it entailed a sense of discomfort, whether it was social feedback, labor, migration, uncomfortable seating, or being asked to show political allegiance. This discomfort often became incorporated in how valuable the characters felt. This study indicates that ludic inquiry can be used to guide game design, analyze acts of play, and inspire real-world research perspectives. Future research could further develop ludic inquiry in other topics, players and contexts, genres, formats, and using other data collection methods, as well as focus on the role of family and discomfort within immigration experiences in the face of oppressive movements.

**Keywords:** ludic inquiry, art, larp, role-playing games, fascism

**Leland Masek**
Tampere University, Finland
*Leland.masek@tuni.fi*

**Daniel Fernández Galeote**
Tampere University, Finland
*daniel.fernandezgaleote@tuni.fi*

**Antonio Pomposini**
Tampere University, Finland
*antonio.pomposinitabja@tuni.fi*

**Daniel González Cohens**
Tampere University, Finland
*dandresgc@gmail.com*

## 1. INTRODUCTION

One of the foundational questions for game studies as a field was whether and in what way games are a unique or novel artistic medium for expression (Gee 2006). There have been several overviews of how and which games are connected to art in a variety of ways. Mary Flanagan's 2009 book, *Critical Play: Radical Game Design*, provided an essential historical overview of different ways art is interconnected with toys, play, and

digital and non-digital games throughout history. There have also been several important works addressing non-digital live action role-playing as an artistic medium. There is a methodological question of how larp can be documented in a way to be consumed later in a traditional artistic form (Cox 2018; Stenros and Montola 2011). Other texts connect live action role-playing games with more generally accepted art forms by analyzing them through the lens of other media studies such as film (Mochoki 2018). Other texts have seen them through the lens of modern interactive art movements (Fedoseev 2014). *The Arts of LARP* by David Simkins (2014), explores a variety of traditional arts forms that he argues are connected, including theater, literature, and also games as a unique category. However, these texts essentially connect live action role playing games as an output, a completed artifact to be analyzed and appreciated in an artistic manner.

Indeed, the appreciation of something as art is one of the fundamental rhetorical means of art in general. *The Oxford Handbook of Aesthetics* separates the philosophy of art into three general approaches:

> One focus involves a certain kind of practice or activity or object—the practice of art, or the activities of making and appreciating art, or those manifold objects that are works of art. A second focus involves a certain kind of property, feature, or aspect of things—namely, one that is aesthetic, such as beauty or grace or dynamism. And a third focus involves a certain kind of attitude, perception, or experience—one that, once again, could be labeled aesthetic. (Levinson 2003, 1)

In this way, the most common approach to connecting live action role-playing as a form of art is really in the aesthetic appreciation of role-playing and games.

This article offers an alternative approach to live action role-playing games as an embodiment of art: creating and applying larp as an *aestheticizing practice*. In this way, much like other art-scientific methodological forms, the paper will approach art-larp not as the completed object to be analyzed but rather as a method in approaching significant topics of meaning (Leavy 2020). We expand upon past scholars who have shown the value of applying games as an arts-research method (Cox 2016), especially for arts education (Cox 2014), by systematizing our approach in a uniquely replicable way. In this way, we utilize and present a form of scientific inquiry based upon the creation and enacted play of a live action role-playing game, namely *On the Other Side: Who We Become After We Move Abroad.* This game will be presented both as a case study of a larger form of inquiry we term *ludic inquiry* and also as an artistic-scientific contribution in and of itself.

This contribution is essential for the advancement of live action role-playing games as a form of art. As the *Oxford Handbook of Aesthetics* (2003) begins, "One conception of art sees it as specially concerned with perceptible *form*, with the exploration and contemplation of such form *for its own sake*" (Levinson 2003, 3, emphasis added). This text stands as a strong claim that live action role-playing games present a method by which individual players are confronted with, contemplate and explore a designed perceptible form known as the game. In analyzing the way players see, think, feel, and act in the course of the game-play we gain access to a unique and invaluable form of meaning-making based upon the mixture of the perceived forms within the game and the players' co-creative choices to reframe these perceived forms.

## 2. BACKGROUND

Games and art have a complicated and mostly disjointed history. Different groups and communities have gone about making games with artistic intents, often without being connected to each other. In general, there are two narratives of games + art that will be explored in this piece in order to contextualize our contribution to the field: firstly, established "game designers" exploring "art" and secondly, established "artists" exploring "games."

In the early 2000s there was a movement of traditional game designers deciding to step out of their expected game design practices in order to more intentionally make game artifacts they called artistic. Often described as the "artgames" movement, it was typified by designers such as Jason Rohrer, Rod Humble, Jonathan Blow and Brenda Romero (Sharp 2015). This is an important movement as they often gained credit from arts institutions' acknowledgement for video games. For example, Jason Rohrer's *Passage* is kept in the New York Museum of Modern Art's permanent collection of video games. While many of these works are digital, not all of them are. There are non-digital art game designs including works by Mary Flanagan and Blast Theory, and games such as *Sixteen Tons* by Eric Zimmerman and Nathalie Pozzi. Brenda Romero's *The Mechanic is the Message* collection of non-digital games was driven by a desire to create artistic critical experiences through game design (Brathwaite and Sharp 2010).

This movement is important as the principles of game design as an art form is highly influential for the current work. This text views itself as asking the question Brenda Romero wrote about her own works "Can mechanics truly capture and express a difficult emotion?" (Brathwaite and Sharp 2010, 216). Ludic inquiry begins with an intention of designing "games that do not take an overt position, but instead model aspects of the systems within the given phenomenon and allows players to explore a particular aspect" (Brathwaite and Sharp 2010, 329). Live action role-playing games have also had several past integrations between games and art contexts with relevant approaches. Live action games have had artistic intent, being designed to provoke difficult emotions and experiences in the players (Montola 2010). Especially in the Nordic Larp design context, designers sought to raise awareness and evoke difficult emotions on topics such as asylum (Bjørkelo and Jørgensen 2018) and military occupation (Pöllänen and Arjoranta 2021). They have been made to be played in traditional art contexts (Cox and Lewis 2023). Contemporary arts-research has applied non-digital games, such as work by, e.g., Jason Cox, who used games to study Poiesis, Praxis, and Aisthesis by players, which he described as

> Poiesis is the visceral and lived experience of "making," the transitory act that expires as it is created. Praxis represents the idea of "doing" a thing, often associated with will and thought, and generally represented as transformation. Aisthesis, which supplies "sensing," differs from aesthetics in that it does not refer to an intellectual evaluation of an encounter, but to sensations and perceptions that are felt when we encounter works of art. (Cox 2018, 82)

Based upon past scholars observing player behavior in games for artistic research, ludic inquiry equally views player actions, especially reframing or reinterpreting the boundaries of a presented game, as a key element of the artistic event to be analyzed. In addition, the inner experience of players during this is of equal importance. Taken together, we see the first pillar of ludic inquiry: Games are social, emotional, behavioral models allowing players to explore an experience. In this way, every game designed can be seen in the form of a research question—did this game inspire an emotionally authentic and relevant experience and which experience did it cause the players to explore?

Whereas past works in non-digital artistic games have generally focused on games as sites of change and education for players, ludic inquiry does not focus on this. Instead, the interest of the current work is on how games can be used as sites of generating data from player behavior and perceptions in response to games. In this way, we are not disagreeing with most of the previous work in this area, but rather taking a different methodological approach for how such projects can be valuable for research purposes.

In addition to game designers making intentionally artistic versions of games, there are also traditions of socially accepted artists making intentionally gameful/playful versions of art. Dada was an art movement between 1916 and 1925 that believed an absurdist and anti-rational worldview was the most necessary form of artistic expression for a period marked by the First World War's horror. In order to approach absurdism, they

created art pieces based on "great clownery that courts the absurd, and loves every kind of game, disguise, or deception" (Kristiansen 1968, 460). Indeed, it intentionally violated the premises of intent in art, often using "games" with automated rules that made it difficult or impossible to fully decide what your art meant. Indeed in the Dada manifesto one of their core principles was "DADA DOES NOT MEAN ANYTHING" (Tzara 1918, 1). This is embodied well with other surrealist games of anti-rationality. Possibly the most famous game developed by this era of artists was "cadavre exquis" or *exquisite corpse*, a set of parlor games for artists invented in 1925 (Kochhar-Lindgren et al. 2011) where different artists would contribute to art pieces without knowing what other artists were doing or why they were doing it, thus creating art pieces that literally could not have a single "intent" behind them. As an example, see the 1926 artwork *Nude* by Yves Tanguy, Joan Miró, Max Morise, and Man Ray, which was created as a game of cadavre exquis.

After the surrealist movements of the early 1900s, games were also a major tool of the Fluxus art movement of the 1960s and 70s, where they were used to create interactivity with participants in a playful event. Fluxus "happenings" were driven by a philosophy of inclusion and interactivity, where "scores" of highly open-ended behavioral descriptions were meant to be followed as the art piece. In many ways a rejection of elitism in art, it viewed the resulting behavior of participants as the primary artwork. *Solo for Violin* (1962) is a score for playing music which includes instructions such as "scrape strings with a nail, loosen strings and pluck ... hold bow to shoulders and bow with violin" and, finally, "bite violin" (Maciunas 1990, 39, excerpt from Bowen 2014, 2). The ambiguity is essential to the ideology of Fluxus, as "The incompleteness of the event score thus provides the opportunity for the interpreter to step into this site between the score and its interpretation" (Bowen 2014, 5). Taken together, these artistic forms greatly influence ludic inquiry.

Taken together, we have the context for the primary theoretical claim of ludic inquiry. Firstly, games are experiential artistic research questions; secondly, player behavior, especially behaviors that seek to interpret new boundaries for the game's rules, are the form of research data. What has been lacking from past approaches connecting artistic inquiry through games is a systemic process of research methodology for applying games as an aestheticizing practice.

## 3. METHODS

> Fiction as a research practice is well suited for portraying the complexity of lived experience because it allows for details, nuance, specificity, contexts, and texture; cultivating empathy and self-reflection through relatable characters; and disrupting dominant ideologies or stereotypes by showing and not telling (which can be used to build critical consciousness and raise awareness). (Leavy, 2020, p. 52)

This work will apply a novel, modified version of fictive narrative analysis to live action role playing game contexts, what will be called *ludic inquiry*. Narrative inquiry has a long standing role in a variety of social sciences (e.g., Sarbin 1986) with narrative techniques such as individual personal narratives, life stories, and memoirs being seen as valuable tools for accessing psychological and cultural information. Essential to these methodologies is a belief that the way individuals experience stories in their own lives affects them. Through accessing these stories a particular form of data is gathered.

These works propose a novel translation of fictional studies and narrative inquiry techniques into an interactive game space: ludic inquiry. Specifically, this text presents a form of research practice leveraging a fictional space, in this case a "game," in order to create an "engaging, evocative, and accessible" (Leavy 2020, 52) manner by which a broad audience may interact with a specific, emotionally complex topic. Through these lenses similar priorities of narrative inquiry as a way of gathering qualitative data will be applied instead to how individuals *interact* with this *fictional behavior space* presented by an interactive game.

The following four priorities of narrative inquiry, based on a summation by Leavy (2020) will be directly applied for the novel application of ludic inquiry:

(1) the relationship of the researched and researcher,
(2) the move from numbers to words as data,
(3) a shift from the general to the particular, and
(4) the emergence of new epistemologies.

Through the new lens of games as a form of interactive fictionality these four principles will be applied and modified.

### 3.1 The relationship of the researched and the researcher

In this article's context, researchers were gamerunners and non-player characters (NPCs) in a live action role playing game where the research participants were characters. Players are informed that they may try and change parts of the game at any time, but certain rules will be enforced. In this way, the game operated as a collaborative fictional frame. Researchers were co-players at times, and also rule-enforcers at times, and out of game safety officers at times. Players were invited to speak to gamerunners as any of these three roles during the course of the game, such as asking questions of non-player characters, asking out of game rule questions, or discussing non-play safety issues. As designers, our positionality and previous experience also frame our design intentions and could thus bleed-in (Toft and Harrer 2020) into the game. The initial frame we design is informed by our own values and perspectives on the themes being explored and thus designer reflexivity enables contextualizing for design choices. Players are thus in dialogue with an intentional value-based proposal and not acting in "neutral ground."

### 3.2 The move from numbers or words to actions as data

As compared to narrative inquiry, this text will use behavioral descriptions as the primary unit of data. This will still fundamentally be a form of qualitative data, where the researchers are describing a thickness of particulars as a form of data. The core theoretical framework is that the game presents a fictional narrative space defined with a procedural rhetoric (Bogost 2008) that invites players to playfully engage with that fiction. Procedural rhetoric here is used to emphasize mechanics as communication tools, though in this case being used to ask questions rather than communicate opinions of the designers. Through player interactions with the games fictional space, and furthermore supported by their discussions shared in the debrief, a form of data becomes clear. When these players are faced with these fictional narrative moments they *engage* in a specific way. By seeing how these players *engage* in these fictional frames, defined by the procedural rhetorical research question-asking of the game's design, the observer is learning about the way other players may engage with these fictional frames.

This design is in many ways similar to a psychology experiment, where a person's behavior is seen as a primary unit of analysis. With a critical epistemic, ethical and artistic difference: the participant is aware that this is a fiction that they are choosing to engage with. In this way, this form of fictional player behavior through the lens of a "character" is a distinct form. In addition, one form of behavior that is of special interest, is when a player engages with the game in an unexpected manner that challenges or reframes the rules of the game itself. Sometimes referred to as uncultivated emergence in games (Torner 2018), these moments go beyond the message-delivery model of expressionistic art games, where the game creates an experience for players. Rather these emergent moments where players create rules and frames of play demonstrate a narrative and act of sense-making they are enacting within the game. An important aspect of a game such as this one is the fact that players can bend the rules and push the boundaries set by the gamerunners. If players find rule-bending more engaging or advantageous even than established rules they may do it (Stenros 2019; Greve et al. 2019). Therefore, not every event in the game can even be planned for.

### 3.3 A shift from general to particular

As with most forms of rigorous methods, rather than focusing first on broad themes of behaviors, this text will first look at concrete specific behaviors, how they connect with other behaviors in order to construct interpretive themes. In this way, specific choices in specific moments by specific characters will allow a thickness (Ames et al. 2024) of particulars for readers to unpack contextualizing elements and reduce the risk of authors interpreting situations in a non-rigorous way.

### 3.4 The emergence of a new epistemology

In this way this text proposed a new epistemology of games as fictional behavior spaces, and player characters engaging with these spaces as a form of data. Of primary interest in this paradigm is intentional game-design choices, meant to invite players into a specific fictional context, whereby the player actions, and player attempts to reframe such contexts become specific, interesting, and topically relevant material. This is reasonably bolstered as a valid form of data gathering due to its structural similarity to psychological interactionism (Reynolds et al. 2010), where personality and environmental context have a history of being integrated to further understand human behavior.

While past works have used the term and certain components behind what we mean with ludic inquiry (e.g., Rapti and Gordon 2021), this is a unique systematization of how a play-based data method should work integrating 1. Game design as fictional frame for behavior as research question and 2. Player behavior and reframing of game rules as data. Taken together this presents a new epistemological theory for games as scientifically relevant, fictional interactive behavior spaces whereby player behaviors and rule-inferences can be seen as a form of qualitative answer to questions asked in the game's design (Figure 2).
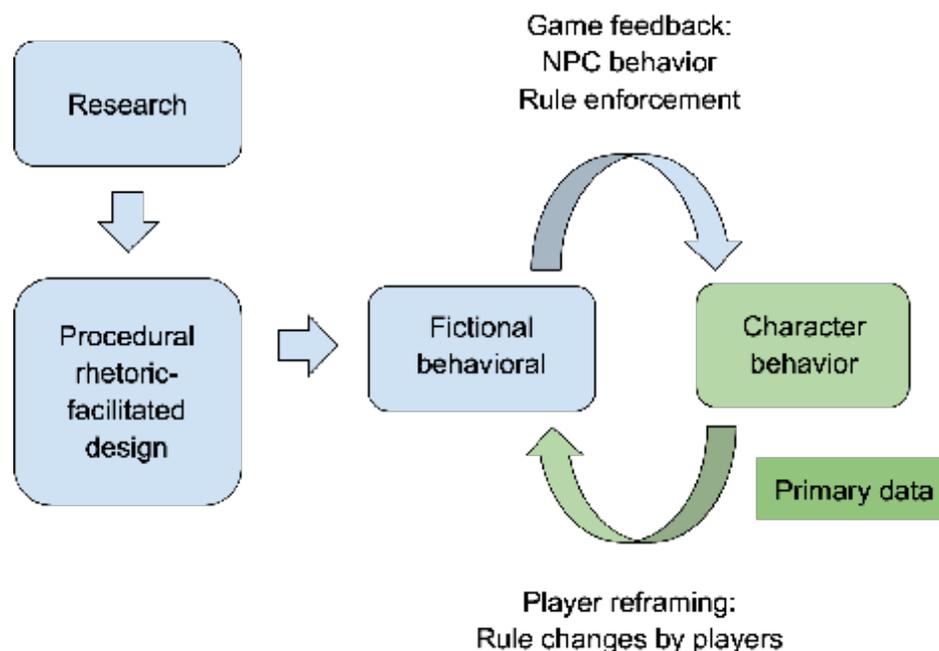


**Figure 1.** Ludic inquiry.

## 4. APPLYING LUDIC INQUIRY: A CASE STUDY ON IDENTITY AND CRISIS

The design team included five migrants in their 20s and 30s who had lived in Finland for one to six years. Additionally they identify as a US-born man, two Spanish men, a Peruvian of Italian and Palestinian descent who is gender nonconforming, and a Chilean man. Four of them are the authors of this article. They all share an interest in game design and research exploring serious topics, such as the interrelations of personal and cultural change. In this way, this game, though not necessarily all versions of Ludic Inquiry, was a form of community arts (Barndt 2008).

Echoing Toft and Harrer's (2018) insights on needs before roles, we did not assign specific roles during the design process, but created a space where we could discuss and articulate our own experiences as migrants and identify what we felt was meaningful as a group. This included discussing struggles, difficulties, and emotional moments that arose from our different cultural backgrounds. This led us to make intentional, collective, expressive design choices that reflected a values-based design process (Flanagan 2009). In contrast to some other values-based design projects, rather than having specific goals or messages we intended to communicate through the game as a fixed object, we sought players to respond playfully and appropriate those choices in the game-space. In this way, we also see players as fundamental contributors to a collective understanding: a dialectic expression of values between designer and player.

When conceptualizing our experiences as migrants and how it affected the way we understood our identities and subjectivity, we found inspiration in posthuman ideas of subjective experience as *becoming*, rather than fixed identities. Especially, understanding the subject as a fictional choreography composed of our relationships to others and the environment that configures a "socially operational" self (Braidotti 2014). In leaving home, we brought to the fore how aspects of ourselves that felt as part of "who we are," were contingent on the ways in which we fitted in and related to our social and material contexts. In having migrated, we were experiencing a keen awareness of how culture, environment, close relationships and more played roles in limiting and enabling who we are (and could be), rather than understanding our identity as an essential quality of ourselves. As Wilde (2023) states: "The different subjectivities that each one of us can embody at once also demonstrate how the idea of a unitary, stable sense of "self" is flawed – we are many things at once and, again, part of this is to do with who we are with, where we are in time or space, and how we intra-act with human and non-human others" (27).

This made us curious to explore how we intra-act (Barad 2007), or affect each other not as independent individuals, but as part of a larger interrelated system that includes a diverse set of people, but also environmental and material conditions. Thus, elements like living situations, material comfort, sense of security and relationship to nature also affected our subjective experience and ways of relating to the world. This all contributed to our desire of creating a ludic experience that explores how we are not ultimate sovereigns of our identities as individual rational subjects, but rather how they are configured in a field of complex affective inter-relations.

The choice of this topic was also driven in part by a thematic topic of the producing and hosting body *The Games As Art Center*. In February 2024 the institution was hosting talks and games about —identity and crisis. This integration was a natural fit as large context changes in life can be experienced as crises that affect our identity, from altered habit triggers (Wood et al. 2005) to sociocultural changes compelling us to adapt (Baumeister and Muraven 1996). We chose a double crisis, migration and fascism, as an international team of designers concerned with the global rise of reactionary politics. As for identity, the game simulates how such changes in the socio-material context affect personality traits. Some questions that this game asks are collected in Table 1. Most of these questions and the design approaches used to present in the game will be addressed in a later section.

## 5. GAME DESCRIPTION

*On the Other Side* is a Larp for 8 to 24 players about identity, social context, and the experience of moving abroad. Players embody characters that belong to one of two countries, Tai or Norr, and experience their daily routines before moving abroad and experiencing life in the other country, a new and different context. The game lasts an estimated 4-5 hours (including a workshop ~1 hour, gameplay ~2.5 hours, and debriefing ~45 minutes).

**Table 1:** The main research questions and the three categories of sub-questions.

| **Overarching research question** |
| --- |
| How does **identity change** as a result of experiencing a **crisis**? |

| **1. Culture and the socio-material context** |
| --- |

**1.1.** What is the role of new **social connections and feedback** in shaping identity?

**1.2.** How do people maintain a relationship to their **former socio-material context**?

**1.3.** How is identity changed after **returning** to a former social and/or material context?

**1.4.** How do different experiences of **labor and comfort** influence identity?

| **2. Identity and personal traits** |
| --- |

**2.1.** How are **original identity traits** managed in a new context? (expressed, concealed…)

**2.2.** How do people integrate **new traits** within their preexisting identity?

**2.3.** How do players **perceive and reflect on their own selves** by the end of the process?

| **3. Crisis and fascism** |
| --- |

**3.1.** How is the **rise of fascism** perceived depending on its **bluntness**?

**3.2.** What identity factors lead to **social support or abandonment** in a high-stakes situation?

**3.3.** How do players **navigate an authoritarian** crisis?

The game was run on two separate occasions. The first run was held in Tampere, Finland, in February 2024. The game was carried out at an independent art space. We had 11 participants for this run, 6 of which went to Tai, and 5 to Norr. The second run of the game was held in Visby, Sweden, in April 2024. We had nine participants, five of whom formed a large family in Tai. The remaining four formed two households in Norr—two sisters and a married couple.

These two countries are neighbors, but they have contrasting cultures, marked by a drastic difference in wealth. Norr is symbolic of post-industrial Western societies. Labor in Norr is marketing-related and consists of creative work done with others. Tai is a poorer industrial country, characterized by manual labor. Norr experiences cold weather and Tai is tropical. Tai is characterized by larger families living together, partly due to preference and economic limitation, whereas many people can afford (and prefer) to live alone or in a small group in Norr.

The game is played in a single room where furniture layout is used to create divisions between each country and between the different areas within each country (living space, workspace, and social/party space). When constructing the space, Norr is given more space, as well as more comfortable furniture. Five gamerun-

ners are present, 4 of which are NPCs during the game. Two of them play the work bosses in each country. The other two are flexible NPCs that take on various roles throughout the days of the game. The fifth gamer-unner remains "out of play" to provide support for players when needed. Days are structured by songs that mark the passage from one section to the next and indicate to players what they are supposed to be doing. Whenever the "work" song starts, players know it is time to leave home and head towards the workplace. When that song is ending and the "party" song starts, that is a queue for players to finish the workday and move towards the social area.

The character creation process takes place during the workshop. First, players are divided into two groups which will determine their country. Within Norr, players form pairs, and in the case of odd players, the odd one out lives by themselves. In Tai, players form groups of 3-5 people. Each of these groups will represent a family, or people who share living arrangements. Once groups are formed, players receive three trait cards corresponding to their country. These are personality traits that will inform who their character is, and are generally aligned with the culture of the country they belong to, thus serving as an initial instance of tying identity to the context. Finally, players are given time to collaboratively create their characters with the other members of their group. They discuss what the relationship is to each other, how they are usually perceived and behave, what their name is, and any other relevant detail that occurs to them.

Play was structured through the repetition of daily schedules over 6 in-game days before the final phase of play. Each in-game day was divided into 4 moments: first, the early morning, where the players' characters would spend some "breakfast" time with the other characters in their home; second, the work day, where they went to their workplace; third, the socializing "party" time, where the characters could unwind and interact more freely with others; and finally, the end-of-day ritual called the "circle of feelings," where characters could express how they felt towards each other through pantomime and physical touch, if the players allowed it. One aspect of the daily schedule that is worth examining more closely is the work that each character performed. In general terms, we wanted the labor to feel repetitive and ultimately not too useful. We did this in different ways in each country: since Norr was intended to resemble societies in the global North, their labor resembled intellectual work, with the characters taking turns around a set of presentation slides (which we partially procured from SlideLizard n.d.) and doing their best to make a coherent product pitch in corporate language, in the style of the improv game battledecks. Meanwhile, as Tai was intended to represent societies in the South, work was intended to resemble manual labor, which we achieved by handing pairs of players sheets of aluminum foil, which one player was tasked with folding so that another could unfold them.

During each one of these phases, players were encouraged to find ways to talk and interact with other players. Since our target audience didn't necessarily have prior experience with games like *On The Other Side*, we decided to also provide players with some narrative and ludic affordances to help them in this endeavor in the form of scheduled events. Every in-game morning, a gamerunner would approach each family group individually in each country as an NPC and provide them with a task or a problem to carry out throughout the day. In each country, whoever performed best at the task among their peers got rewarded with an additional Trait card.

What the "best performance" meant for each task would vary depending on the nature of the task, and would produce moments of tension between the different drives for the characters: for example, one event has a social servant deliver a form to apply for government aid, but the form is overly convoluted and complex, and the funds are limited. What this means is that, by the end of the day, whoever in each country was the one that filled the form with the most signatures will be awarded the funds (and a new trait card). As a result, some characters may be driven to ignore other activities in favor of fulfilling this specific task.

The second kind of regular event were the migrations on the end of the second and fourth in-game days. In the first migration, half of the players of each country switch places with each other, and in the second migration, all players switch countries. After these migrations, players are assigned to new family groups for the next phases of play and encouraged to interact with them.

Finally, after the end of the sixth in-game day, the circle of feelings is interrupted to showcase how both nations have simultaneously been taken over by fascists, a development that was directly foreshadowed in the previous rounds, and that both countries need to strictly determine who belongs to which country. It is at this stage that all players are brought together into the "Theater of Fascism," in which every player takes the stage in front of everyone else to state their case on what country they want to continue living in, and why they should be considered for it. After one minute, the rest of the players may cast their Trait cards as votes of confidence, and if the player receives five cards of the same country, they will receive a passport for that country (e.g., five Norr cards award a Norr passport, but four Norr cards and one Tai card does not award a passport). The cards used up for a successful bid for a passport are expended.

After every player has had a chance to earn a passport, they are all brought to a final stage where, in an inversion of the circle of feelings, they have a chance to reflect in front of a mirror in an isolated space (such as a bathroom) for a few seconds about the result they have arrived at. After this, if they have a passport, they move to the issuing country, but if they don't, they move to the "Nowhere Place." The Nowhere Place is a final zone set apart from all the others that is meant to unambiguously signify death, either immediately as a result of the coup, shortly thereafter as a result of exile, or later as a result of further violence. After this stage is completed, the game is over, and the players are reunited for a round of debriefing, deroling, and conversation about the experience.

## 6. CONTEXTUALIZING THE GAME'S DESIGN

In this section, we detail how the mechanics used in the game address questions on culture, identity, and crisis. In each case, we provide an overview of literature bridging the relationship between the concepts and the mechanics.

### 6.1 Culture and the socio-material context

One cultural aspect explored in the game is how new **social connections and feedback** shape identity. Our personal identity includes all properties that make us "ourselves" (Olson 2023). Identity depends on variable and provisional factors, and even when factors remain constant, a person may give more or less importance to them in different moments, even to the point of experiencing an identity crisis when one feels like they lost fundamental characteristic aspects (Olson 2023). An important aspect that "makes us who we are" is personality, or the ways in which we tend to think, feel, and behave (Roberts and Yoon 2022). While personality tends to remain consistent throughout our lives, experiences in relationships, work, and health, including events such as traveling abroad, can change our personality traits, e.g., making us more extraverted or neurotic (Roberts and Yoon 2022). Players' construction of their own character's personality was guided by randomly given *traits*.

In addition to personal, one may have other forms of identity, including national, ethnic (Olson 2023), or cultural. These may be understood as forms of social identity, or "that part of an individual's self-concept which derives from his knowledge of his membership of a social group (or groups) together with the emotional significance attached to that membership" (Tajfel 1974, 69). Social identities may be perceived in a positive or a negative light, and individuals may engage in different strategies to alter them, such as attempting forms of mobility or competition (Ellemers and Haslam 2012). Creating and maintaining a desired group identity is a core reason for engaging with others (Ellemers and Haslam 2012), and experienced acceptance or rejection by a social group can affect a person's self-esteem (Leary 2012). Identity-shaping forces include repeated contact with family and other close social groups (Putney and Bengtson 2002), from physical touch (Cekaite and Goodwin 2021) to verbal interaction in shared ritual moments such as meals. In the game, players could talk

to their new family during *breakfast*, and to the community during *work* and *party time*, whereas the *circle of feelings* mechanic allowed for non-verbal social feedback.

However, our own actions, such as competence at work and in other tasks (Christiansen 1999), are also important in identity formation. We introduced the *daily missions*, by which players could acquire new traits from the country they were in, as a way for them to demonstrate competence in ways appropriate to their national and social context. Neither does the other competence mechanic, *work*, exist outside of social and personal reality. We bring our nationality, gender, or religion to work (Berg 2002), and what we do there is relevant for identity formation (Gini 1998; Miscenko and Day 2015). In particular, different occupations and work types can lead to feelings such as pride and joy (Danielsson et al. 2019). Accordingly, we considered **labor** through distinct *metaphors for working life*, one being more manual and one being more intellectual. We also considered **comfort** through *differences in space* for sitting down and sleeping, as our sense of place is also relevant for our identity (Lengen and Kristemann 2012).

Another cultural aspect is the maintenance of a relationship to one's **former socio-material context**. In this game, all players were gathered in the same room, and the spaces were delimited by *porous barriers* (i.e., not even walls separated Norr from Tai). This means that the characters' physical home (the country, the household) need not coincide with their psychological home, which is connected with one's feeling of belonging to others surpassing the physical environment (Sigmon, Whitcomb, and Snyder 2002). As people visit, communicate, and share resources across countries (Adugna 2019; Soehl and Waldinger 2010), our players were also able to build a psychological home beyond the confines of their pretend physical space.

The game also questioned the effects of **returning** to a former social and/or material context on identity. In the game, some players had to *return* home, possibly with *new traits* acquired from completing missions abroad. One's experience as a migrant matters in relation to one's relationship to their culture and old country. A person's socio-cultural integration in a new country makes it less likely that they would like to go back to their country of origin (De Haas et al. 2014). Even after returning, transnational ties may be maintained (Vargas-Valle and Glick 2021) and a hybrid cultural identity formed (Sussman 2000). A forced return is often problematic due to a lack of possibility to prepare and set realistic expectations (Lietaert et al. 2013) and it can lead to experiences of discrimination and distance (Kunuroglu et al. 2015). These readaptation issues can impact one's sense of self and social identity.

### 6.2 Identity traits

*On the Other Side* also explored the characters' personality traits. They were given *initial traits* at the beginning and had to **manage them in a new context**, plus they were offered *additional traits* for completing missions to **integrate within their preexisting identity**. This all occurred as they received *feedback* from others who also had evolving traits. As said, our personality is defined by the ways in which we tend to think, feel, and behave (Roberts and Yoon 2022), and these may be altered as a result of new experiences (Roberts and Yoon 2022). Identity can be seen as adaptive, where both culture and choice and change are relevant factors (Baumeister and Muraven 1996), and developing in relation to goals and in negotiation with the context (Schachter 2005). Yet, at the social level, different people have different subjective beliefs that integration in different social groups is possible (Ellemers and Haslam 2012) and therefore this form of flexibility is conditioned by aspects of the self. Therefore, characters should have been able to manage and integrate their identity traits differently, but the form and extent of this integration should vary. It is also important to remember that in the game, others *migrated with the character*, so reinforcement of cultural identity could occur. Depending on the new social context, a change in geographic context can strengthen, e.g., an ethnic identity (Saylor and Aries 2010), but aversion by the environment can also reduce it (Ethier and Deaux 1994).

The final stage of the characters' identity came at the end of the game. How could they **perceive and reflect on themselves** after the crisis? For this, we provided *a mirror and a private space* for them to enact a circle of feelings of one for one minute. Mirrors have been found to support self-reflection and used as intentional tools for such purposes in exhibitions (Ridley 2015) and technology-enhanced interventions (Rajcic and McCormack 2020).

### 6.3 Crisis and fascism

We wanted to explore the participants' **perception of fascism** depending on how overtly its values and tactics were represented. In Norr, the escalation of fascism was *soft*, while in Tai the manners were always *aggressive*. The existence of a superficially soft form of fascism in Norr was not a fabulation—fascism is said to have adopted a "new face" (Traverso 2019). Groups on the radical right are often called "crypto-fascist" due to them not acknowledging the implications of their ideology and the policies they promote, and will often take offense to being compared with historical fascism (Copsey 2018). Both versions of fascism however were designed to mimic the factors of fascistic rise based on Paxton (2004):

> [Fascism is] a form of political behavior marked by obsessive preoccupation with community decline, humiliation, or victimhood and by compensatory cults of unity, energy, and purity, in which a mass-based party of committed nationalist militants, working in uneasy but effective collaboration with traditional elites, abandons democratic liberties and pursues with redemptive violence and without ethical or legal restraints goals of internal cleansing and external expansion. (216)

In the game, this was an explicitly militant movement that, united with the elites (the bosses), sought to cleanse the "bad" members of society, and create a cult of unity.

The culmination of fascism in the game is the trial, in which the mechanic *one trait, one vote* and the exploitation of *built social relationships* become relevant. These explore the factors leading to **social support or abandonment** in a high-stakes situation. After all, according to social identity theory, social context is said to be "the key determinant of self-definition and behavior. People's responses are thus understood in terms of subjective beliefs about different groups and the relations between them, rather than material interdependencies and instrumental concerns, objective individual and group characteristics, or individual difference variables" (Ellemers and Haslam 2012, 379). In moments of external threat and common fate, people tend to care more about how a relevant collective views them, rather than how they see themselves or how society at large does, which has an impact on their behavior (Triandis 1989). Plus, people are generally biased in favor of members of their own group, from empathizing to sharing resources (Tajfel et al. 1971). In crisis situations such as severe disease, it is often the family who becomes the core support network (Snyder and Pearse 2010).

It is also important to remember that in the game, **navigating the authoritarian crisis** occurred in a context in which characters had the option of *compliance versus punishment* one of the defining features of fascistic authoritarian legal systems (Skinner 2015), with players for example being sent to jail in Tai. Historical examples include all sorts of individual and collective behaviors, from radicalization to partisanism, from collaborationism to quiet acceptance or resistance.

## 7. GAMEPLAY ANALYSIS

This section reports events as observed by the gamerunners during the game's two sessions. All statements were made in game and observed by gamerunners. Players in both runs were informed that the game was a

part of an ongoing research project with players agreeing to participate in this observation. No personal data was solicited or recorded for players. The findings are organized according to the three focal points of culture, identity, and crisis.

## 7.1 Culture and socio-material context

Some players approached new relationships confrontationally, strongly preferring their previous social bonds, while others were more adaptive. This led to a clear difference in wellbeing, as those who adapted reported experiencing a stronger sense of belonging in their new context, while those who did not reported a sense of rejection. The circle of feelings seemed particularly impactful in developing an understanding of how characters were perceived by their peers through emotionally charged gestures and physical contact (Cekaite and Goodwin 2021).

Even when forming connections to their new contexts, characters maintained a relationship with their former ones. Firstly, their previous experience influenced how they approached new environments, as we will see when discussing work. As mentioned earlier, countries had no physical boundaries, which also created a permeable space where characters were peripherally aware of what was happening in their previous context. This was reframed by some characters, who proposed using telephones to communicate with their relatives. Sometimes, this was accompanied by a refusal to develop further relationships in their new country, where lacking a sense of belonging led them to yearn to reconnect with family and vice-versa.

Upon returning to their original countries, characters expressed having gained perspective for self-understanding due to having experienced drastically different realities. This affected how they perceived their relationship to their original context as some discussed having a newfound appreciation for it, while others felt returning meant leaving a better life behind. For example, in run 1 characters returned to Norr from Tai describing it as chaotic. Most characters, regardless of country, preferred life in Norr, which led to some players in Tai grieving that they had to go back, and asking for Norr citizenship at the end of the game. This aligns with De Haas et al. (2014) as becoming well integrated in a new country made players prefer to stay instead of returning. To a lesser extent, a few Norr characters expressed feeling freer in Tai after returning home, and having discovered sides of themselves previously unexplored. In both cases, characters mentioned feeling unable to ignore their new relationships and experiences. This could be understood as approaching a hybrid identity (Sussman 2000) through their relationship to both cultures.

Characters were quick to interpret material comfort as wealth. Not only did the differences in space layout per country translated into their lived experience, but they also began ascribing their own meaning to game elements. Characters in run 1 seemed to decide that the household with the couch was the "wealthiest family," which in turn affected how they related to others in the game. Conversely, the use of cramped space and stools instead of chairs in Tai was immediately perceived as a contrasting lack of comfort which contributed to dissatisfaction with work life, which was observed through an eventual protest, where sitting arrangements for all factory workers was a primary demand. These interpretations worked to create a clear difference in the space identity for each country which "influence our way of thinking, our consciousness, the course our life takes, our social structures, our health and well-being" (Lengen and Kristemann 2012).

Labor experiences played a central role in configuring a sense of space for each country, in characters' self-understanding and identity, and the overall game narrative. As per Christiansen (1999), we saw that characters who were valued by their bosses and peers expressed feeling competent within their work life and feeling they belonged in that context, whereas those who did not fit in expressed dissonance with their context and a difficulty finding meaning in their own identity.

In this regard, we observed a tendency by some Tai characters to adopt a defeatist attitude towards their relationship to work. This was observed by Norr bosses in both runs of the game after the first migration.

Tai characters who already felt rejected by the harsh labor conditions in their country often assumed that they would not succeed in Norr, that it was not worth trying. Usually this came accompanied with comments suggesting that their ideas, creativity or unique perspective would not be valued, and that they would be unable to find a context where their goals or aspirations would make sense. Conversely, some people in Norr reported enjoying themselves doing work in Tai as a change of pace involving more physical labor. Not only does this speak to their already established sense of competency, which they were able to carry over, but also to the favoritism by the Tai boss, sometimes for explicitly racist reasons, who made a conscious decision as NPC to relate to them as inherently more capable and well prepared. In both cases, notions of one's national identity were brought to the workplace (Berg 2002) and informed how they perceived themselves.

One of the main forms of character reframing in the game were worker protests in Tai. What surprised us as gamerunners is how this emerged organically in both runs of the game, which could suggest that players have a strong reaction to notions of well-being in the workplace and chose to make worker movements a significant part of the narrative of the game. In both cases, the protests were prompted by bad work conditions, lack of safety and exploitation by bosses. In one case, the narrative developed through police detention and incarceration, which created fear in characters that being labeled a criminal would make them socially undesirable. Other characters whispered amongst themselves and to their bosses that their peer had been labeled a criminal and would not have good chances of staying a citizen. In the other, protesters were fired and the remaining workers were further exploited to cover for the missing personnel. Characters reframed this situation as escalating in a variety of ways, for example role-playing exhaustion and workplace injuries while their family took care of them before returning to work. These emergent proposals showed key ways in which players reframed the game space and narrative through their own meaning-making.

## 7.2. Identity traits

Some players immediately noticed that their traits clashed jarringly with their new context. For example, traits such as "I love peace and quiet" seemed to encourage some characters, when placed in a louder foreign country context, to retreat from social situations and become more isolated than they were in their previous context. On the other hand, in both runs, when visited by a charitable organization asking for donations, some players chose to give an identity card as a "valuable part of themselves." This could be interpreted as giving away part of your previous identity as you become part of a new context. Additionally, this also interfaced with the end of the game, as giving up trait cards meant having less votes on who to save from the threat of fascism.

When gaining new identity traits during the game, we observed that some characters did not put much effort into incorporating them into their identity, keeping them only as rewards for the end game. Characters adopted some traits from their new contexts, whether from trait cards or just from their experience. Migrants from Tai tended to become more orderly and structured, while Norr players developed more extraversion. What did have a more significant impact in players' self-understanding, and was the focus of many players during deroling, was the experience of character trauma by the end of the game, after surviving but having lost family members, which gave new meaning to their continued life.

The end of the game, after the theater of fascism, seemed to inspire a reflection on harsh realities about what had transpired in the game. It seemed to trigger feelings of abandonment, when characters had friends and family who did not use their votes to protect them. Others seemed to become estranged from relatives, from whom they would be separated or when one of their relatives would go to the Nowhere Place. Players sometimes seemed to experience something similar to survivor guilt when their loved ones did not get a passport but they did (Murray et al. 2021). Some players used the space and time for reflection to resist the outcome. Unexpectedly, several players tried to covertly give their passports to others, abandoning their safety so someone else could survive. The final minutes of the game were dominated by a solemn silence from characters, as they processed and reflected on the entire experience, and where they had ended up.

**7.3 Crisis and fascism**

During the game, organizer NPCs playing the fascist party members were given liberty to represent their characters in satirically creative ways. This gave rise to the "fash" party in run 1, and to the "fashionista party" in run 2, both in Norr. NPCs in run 2 also came up with their own armbands which satirically emphasized the role that social media plays in propagating fascist-sympathetic messages.

Despite this, most characters chose to vehemently oppose fascism during its foreshadowing and rise to power. In run 2 of the game, no character said they supported the fascist party when visited by party militants. During run 1, some characters did express support. During deroling, many expressed they did so out of fear. Some added that specifically due to their migrant status, they feared that openly opposing a rising party, or being seen to instigate political instability would affect their chances to legally remain in that country.

Moreover, it is important to remark that characters had been given no mechanical way to truly confront fascism or change the outcome without "breaking" the game. During the workshop it was explained as a fact that fascism would take over, and it was a key part of the game mechanics that they would then have to vote on each other for citizenship. This did not stop characters from attempting to find forms of resistance at the limits of this framework. Characters tried to disrupt the theater of fascism as a form of protest and were generally arrested, though they seemed content with resisting even when unsuccessful.

We observed characters become more worried about their past behavior during the game once the Theater of Fascism began. This manifested during group discussions, where characters made sure to bring up the ways in which they had helped others, as well as paint in a positive light those players that they wanted to encourage others to support. This aligns with Triandis' (1989) claim that during a crisis, perception by the collective becomes more relevant than one's own. Characters in particular seemed to strategize upon realizing that not everyone they wanted and cared for was sure to survive. We noted that despite having made new connections, during voting, characters defaulted to voting for their initial families, which resonates with Snyder and Pearse's (2010) findings on family as core support networks. It also relates to players' sense of psychological home (Sigmon, Whitcomb, and Snyder 2002) as characters chose to privilege remaining with family over obtaining citizenship in their preferred country. When making their case, many expressed a version of "wherever I go, please help me stay with my family." Two observations stemmed from this. The first is that in some cases, these bonds were so strong that characters whose family members went to the Nowhere Place chose to go with them instead of seeking citizenship. The second was that some characters worked hard to make sure that their family members received the support they needed, but when it was their turn to receive votes, they realized that most votes had been spent, and their family was unable to reciprocate in kind. In two of these cases, characters commented during deroling that they felt abandoned or forgotten by their family.

**8. CONCLUSIONS**

In this study, we have applied ludic inquiry to an original art-larp with the aim to answer the question, "How does identity change as a result of experiencing a crisis?" Our results suggest that the characters' familial relationships were a response to crisis throughout the game, playing a strong role in significant events such as the Tai worker riots, international phone calls, and saving others from fascism, including guilt over not being able to save family members.

Characters experienced the game's crises depending on their level of comfort—crisis was not an univocal external event but internally felt when discomfort existed. Social judgment led to negative feelings and introspection about one's behavior—a personal crisis. Seating scarcity in Tai led to a work crisis. Tai citizens who moved to Norr maintained a sense of discomfort even as the nature of labor changed, whereas Norr

citizens who migrated to Tai were well-treated and thus welcomed the manual labor and kept their feeling of comfort. For them, moving to Tai was not particularly a crisis. Thus, the crises presented by material and social environments resulted in a) discomfort, tension, and limitations to one's ability that then became incorporated in how valuable the characters felt, to the point that those who felt afraid were likely to express support for the fascist party, or b) a sense of comfort and adaptability when they sensed that they fit in an environment, to the point that some migrants preferred their new country to their previous one. In general, identity was relatively stable throughout, as some did not put effort to integrate new traits. Often, this personal identity seemed to determine how the game's rules and crises were experienced, as they reframed the game space and narrative through their own meaning-making.

This case study has both theoretical and practical implications for the use of ludic inquiry as a method. Players demonstrated behavioral responses, emotionally nuanced reactions and meaningful social relations within this unserious space that they described as authentic and were also in reaction to the topics we intended through our design choices. This seems to show that how players play and experience games can be seen as research data for games designed as research questions. Theoretically, ludic inquiry seemed suitable to answer the questions we proposed. While there are fundamental epistemic differences between reality and simulated situations in larps, we did find some alignment between our data and sociological literature. In practical terms, this method can be used to guide both game design and research—meaning that games can be designed with research questions in mind, and ludic inquiry can be used as an analytical lens.

Nonetheless, as limitations of this study we first put forward the importance of maintaining epistemological caution. In role-playing, players may feel, try to act accurately, and learn about themselves, but they are still playing a role in a fictional situation. Second, our data is based on observation and debrief, meaning that we could not ask every player about their perception of every event in the game individually. Third, because players were given a fictional role, we cannot know to what extent what people thought, felt and did in the game is related to their real identity and personality. This research methodology had no intent to necessarily change or educate its players as might be common in serious games or educational larp. While those are admirable goals, ludic inquiry is invested in a systemic method of observing player responses to a game as arts-research data, rather than as a site of intervention.

While this current application of the methodology was not built towards transforming players nor did we record any evidence of possible transformations, this does not mean players and/or designers do not change in the process of developing or playing intentional games. As designers, we bore the ethical responsibility of our design choices and how our own perspectives frame the ways players interact with and articulate their understanding of the themes of the game. In future works, it is important for designers to be aware of safety techniques, establish ongoing informed consent with players, and enable players to productively process any forms of reactions they may have in a game space. This project did utilize a number of techniques in regards to how players/designers may react to gameplay, including an out of play safety officer, an hour-long introduction describing several safety/consent techniques, a full explanation of every stage of the game to players, explicit discussion of how players could signal they were pausing their play of the game, players being asked "out of game" if they wanted to take a break when any game runner was concerned, and an hour-long debrief after the game for players to reflect on their experiences.

One of the limitations of the current work is directly addressing how believable the players found the game scenario. Players who take the game "seriously" (Jorgensen 2014) may have very different behaviors and emotions in the game. This is also connected to the larp concept of whether players saw their personal identity "bleed into" their character, or their character "bleed out" affecting them as people (Järvelä 2019). Future work on ludic inquiry should explicitly investigate bleed and serious perception. While this was not a question at the time of research, seriousness has interpretive value in our observation that players who took fascism in the game more seriously were more likely to not openly denounce it. Despite these limitations, we think

ludic inquiry as an explicit arts-research methodology for games has considerable value for future designers, researchers, or artists interested in applying games to answer research questions.

Future research could further develop ludic inquiry in other topics, players and contexts, genres, formats (e.g., duration, medium), and using other data collection methods, such as in-depth player interviews. Conversely, the findings of ludic inquiry can also encourage real-world research. While there is some scholarly interest in the family's role in resisting fascism and totalitarianism (Portelli 2017), this game directed our attention towards the prominence of familial ties in resisting direct violence and calls for further investigation on the role of family within immigration experiences in the face of oppressive movements.

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**Leland Masek** is a Doctoral Candidate at Tampere University's program in Media, Communications and Performing Arts. His dissertation is on definitions of playfulness and wellbeing across discipline and culture. He also directs the Games As Art Center in Tampere Finland, which hosts hundreds of public events a year on aesthetic and important play in games. Leland Masek also runs the Oasis Research Group at Tampere University which studies the empirical well being effects of playful behavior in games. He is a game designer with 14 years experience predominantly in games for education, pervasive games, interactive theater, and experimental game design.

**Daniel Fernández Galeote** is a postdoctoral researcher at the Gamification Group, Tampere University, and a member of the board of directors of the Games As Art Center. He has designed and developed playful experiences ranging from augmented and virtual reality games to live-action role-playing games. He has also consulted in gamification projects across multiple sectors. He has a background in journalism, game design, and game studies. His current research explores how play, games, and gamification support public engagement with climate change and sustainability transitions.

**Antonio Pomposini** is a Master's student in game studies at Tampere University with a background in philosophy. His main areas of interest are philosophy of technology, aesthetics, posthumanism and their intersections with play and games.

**Daniel González Cohens** is a Master of Sciences in Game Studies from Tampere University, project coordinator, and social science researcher. He has over seven years of experience in project proposal design within public regulatory frameworks, methodological design, and project management and coordination. As a researcher, he is interested in learning about play as a collective social practice, shared imagination, and particularly tabletop role-playing games. He specializes in problem-solving, creativity, organizational skills, and willingness to work in multi- and interdisciplinary teams.

# Utilizing Psychophysiological Measures in Role-playing Studies

**Abstract:** Role-playing studies encompass diverse and dynamic experiences, from tabletop role-playing games (TTRPGs) and wargames, to live-action role play (larp). These activities offer rich opportunities for examining interpersonal interactions, emotional engagement, and creative problem-solving. Employing psychophysiological measures—such as eye-tracking, galvanic skin response (GSR), heart rate, and facial and vocal emotion analysis—provides a means to quantify these phenomena. The considerations for incorporating psychophysiological methods into role-playing studies are outlined here, including an overview of the methods, their relevance to role-playing studies, and considerations for their implementation. Additionally, this paper details the importance, utility, and potential insights these measures bring, as well as challenges and limitations.

**Keywords:** role-playing games, game studies, wargames, table-top role-playing (TTRPGs), live-action role-playing (larp), psychophysiological methods, game design, player engagement

**Joshua Juvrud**
Uppsala University Campus Gotland
*joshua.juvrud@speldesign.uu.se*

## 1. INTRODUCTION

Role-playing games, in their various forms, have gained widespread popularity and academic interest (Sidhu et al. 2024; MacCallum-Stewart et al. 2018, 172-187; Vukojević et al. 2024, 7-21). Table-top role-playing games (TTRPGs) like *Dungeons & Dragons* and live action role-playing (larp) events create unique environments where participants adopt personas, collaborate, and navigate complex narratives. Another often overlooked category of role-playing games are wargames, including matrix games, kriegsspiel, and hex-and-counter games (Hirst 2022). These games share foundational elements with traditional role-playing games, including strategic decision-making, detailed rulesets, and conflict resolution often involving dice or probability. Wargames may also use game masters, narrative-driven focus, miniatures, and maps to structure and visualize gameplay. Together, these contexts have been used and studied as tools for psychological growth (Bowman and Leiberoth 2018, 245-264; Coe 2017), learning (Bowman and Standiford 2015, 4-25), personal transformation (Daniau 2016, 423-444), fostering creativity (Chung 2013, 56-71), or improving social skills in therapeutic or educational contexts (Corsini 2017). This paper outlines considerations for incorporating psychophysiological methods into role-playing studies, including the category of wargames, and provides an overview of different psychophysiological methods, their relevance to role-playing game research, and considerations for their implementation.

Ethnographic methods, such as participant observation and interviews, are commonly used to analyze how players negotiate roles, develop narratives, and engage in imaginative play (Bowman 2010). However, similar to the field of game studies during its establishment, I argue there is a need for role-playing studies to integrate new directions from fields such as psychology, communications, education, and health sciences. From a design perspective, research may focus on the mechanics and narrative structures that shape player experiences. Game designers and scholars may analyze rules, storytelling frameworks, the role of a game master, and the balance of improvisation versus structure to understand how these elements create engagement and

agency for players. These capture a wide range of phenomena to study, including both artifacts and practices (Lieberoth and Roepstorff, 2015, 271-289). I want to echo the opening words of Lieberoth and Roepstorff's chapter on mixed methods in game research:

> Designers and researchers who only observe a game through one instrument…will pick up on a limited fraction of the information available. If we are interested in both players and games, as well the moments where they merge into play, a mixed methods approach is called for. (Lieberoth and Reopstorff 2015, 271)

Research on games and players, and design and behavior, constantly intersect; as the study of game design informs insights into how games mediate social interactions, while behavioral research highlights how players adapt and innovate within the designed systems. Psychophysiological methods can provide valuable insights into the cognitive and emotional responses of players, offering a deeper understanding of how game mechanics, social dynamics, and immersive experiences influence behavior and engagement.

While this paper is not meant to be a comprehensive review of psychophysiological methods, it aims to introduce commonly used measures from other fields that can enhance levels of observation and complement existing ethnographic methods in role-playing studies. More is not better; but understanding how different types of data collection and analyses play together and utilizing them in a priori investigations can yield novel insights into role-playing experiences.

## 1.1 What are psychophysiological measures?

In the field of psychology and behavioral sciences, psychophysiological measures are commonly used in research to assess the relationship between physiological responses and psychological processes (Andreassi 2010; Ax 1964; Hodges 2010). These measures capture real-time, objective data about bodily functions, such as heart rate, skin conductance, brain activity, emotional arousal, and muscle tension, which are often linked to specific emotional, cognitive, and behavioral states. These methods allow researchers to explore concurrent mechanisms of behavior, such as the physiological correlates of stress, emotion regulation, attention, or cognitive load, providing valuable insights that complement self-report or observational data (Andreassi 2010; Ax 1964; Hodges 2010; Shi et al. 2007, 2651-2656). These can then be important indicators of learning and transformation through gameplay.

Psychophysiological measures provide unique benefits in the study of behavior and game design. They offer a window into the concurrent cognitive and emotional processes of players and the relationships with game mechanics (Kivikangas et al. 2011, 181-199). While role-playing studies have traditionally relied on qualitative and observational data, psychophysiological tools can enable researchers to quantify the experiences of participants in real time. There are, however, limitations to psychophysiological measures, including both perceived and practical barriers.

This paper discusses the potential of several psychophysiological measures: eye-tracking, galvanic skin response (GSR), heart rate monitoring, and facial and vocal emotion analysis, as tools to deepen our understanding of role-playing experiences. The paper discusses the benefits and limitations of each, including practical examples within the context of role-playing studies, along with recommendations for researchers. The aim is to inform, inspire, and address a gap in current role-playing research. I first introduce each measure, describe how they have been used in other areas of research, and discuss how they might contribute to the field of role-playing studies. I then describe practical considerations, including strengths and weaknesses of each measure, as well as commonly used tools and equipment. Finally, I end with describing the benefits of combining multiple measures in a single study and future directions for role-playing studies utilizing psychophysiological measures.

## 2. PSYCHOPHYSIOLOGICAL MEASURES AND THEIR RELEVANCE TO ROLE-PLAYING STUDIES

### 2.1 Eye-Tracking

Eye-tracking measures capture and quantify various aspects of eye movements (gaze) to provide insights into visual attention, cognitive processing, and perception (Rosch and Vogel-Walcutt 2013). Common metrics include fixations (moments when the eye is relatively stationary and focused on a specific area), saccades (rapid movements between fixations), dwell time (the total time spent looking at a specific area of interest), revisit count (how often an area is revisited), and time to first fixation (how quickly the eye is drawn to a specific element). In some cases, pupillometry (the dilation of the pupil) can also be used under highly controlled contexts. These measures are often used in research to understand how individuals process visual information, such as identifying which elements of a stimulus attract attention, how information is prioritized, and how patterns of visual exploration relate to cognitive and emotional responses.

The eyes are often thought of as the window to the brain. This phrase reflects the idea that eye movements and gaze patterns reveal underlying cognitive and neural processes. When we track where and how long someone looks at something, we gain insights into attention, decision-making, memory, and emotional responses. In role-playing studies, for instance, eye-tracking can reveal important aspects of social interaction (Rogers et al. 2018, 4271). For example, it can help researchers analyze how players observe and respond to other participants during interactions, shedding light on social dynamics, leadership roles, and levels of engagement. The ability to track visual attention in real time offers valuable data about how players connect with each other during collaborative storytelling or conflict resolution.

In addition to social dynamics, eye-tracking is a powerful tool for assessing how players engage with the environment (Gidlöf et al. 2013), including game materials. By monitoring gaze patterns, researchers can evaluate how participants visually interact with maps, character sheets, props, or other elements of the game world. This provides insights into narrative engagement and cognitive processes, such as how players process complex game information or identify key elements during decision-making moments. Similarly, eye-tracking also taps into decision-making processes (Fiedler and Glöcker 2012, 335) by capturing the sequence of visual attention during critical moments in gameplay, revealing how participants prioritize information and make strategic choices. Because we process information when our eyes are fixated on certain stimuli (Bhat and Hussein 2021, 113-119), the number and order of fixations can tell us what information was being processed before a key decision was made, as well as what information was ignored.

### 2.2 Examples of Eye-Tracking Technology

Eye-tracking research employs various tools and equipment (see Figure 1), tailored to the specific goals and contexts of the study (Rosch and Vogel-Walcutt 2013). Screen-based eye-trackers are among the most common, involving fixed devices like infrared cameras or high-speed sensors mounted below a monitor. These systems track participants' gaze as they view content on a screen, making them ideal for studying visual attention to digital stimuli such as websites, images, digital games, or videos. Head-mounted eye-trackers are portable devices, often resembling glasses, equipped with miniature cameras to record gaze direction and the participant's field of view. These are commonly used in studies requiring free movement, such as navigating real-world environments, interacting with physical objects, or participating in social interactions. For a review of best practices in eye-tracking, see Carter and Luke (2020, 49-62).
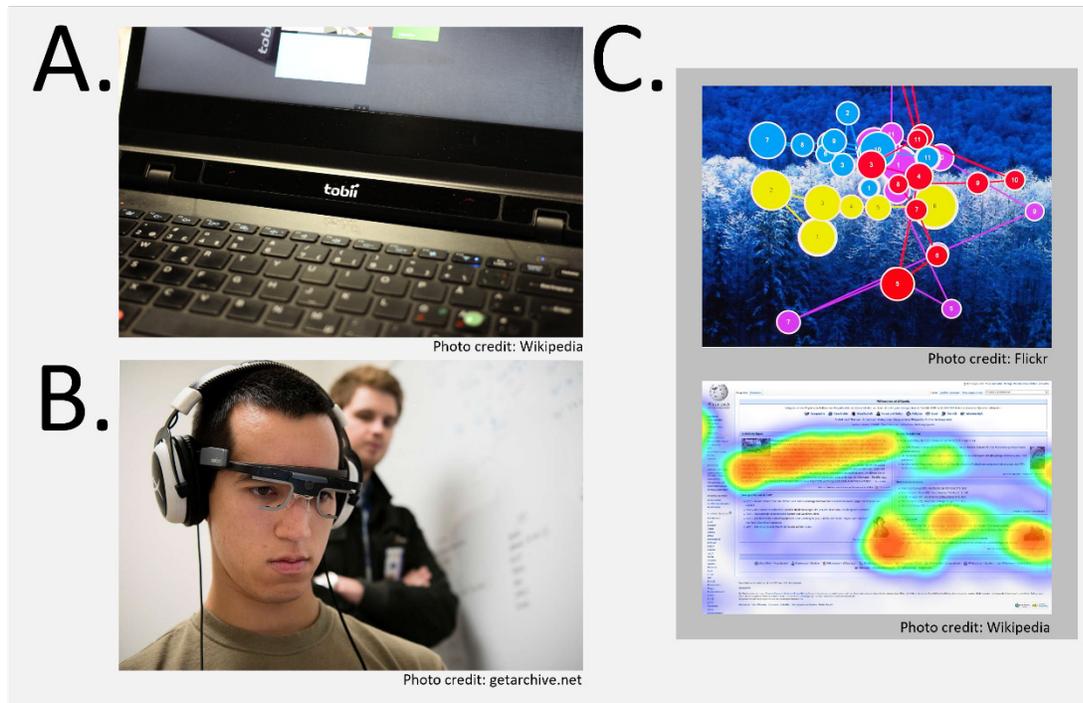
**Figure 1**: There are several different types of eye-tracking tools, such as screen mounted eye-trackers (A) and mobile head-mounted eye-trackers (B). Data from eye-tracking can be visualized in a variety of ways, such as scan path patterns and heat maps (C).

For most role-playing studies, where participants engage with dynamic or physical settings, live or mobile eye-tracking systems are often necessary (Pérez-Edgar et al. 2020, 286-292). Mobile eye-trackers are lightweight, wearable devices that allow for natural movement and interaction, often combined with external cameras to capture the broader context of the participant's activity. In tabletop settings, such as wargames, other configurations can be used, albeit with careful calibration to mitigate interference from environmental factors such as lighting, cluttered tables, and varied seating arrangements. In immersive environments like virtual reality (VR), integrated VR headsets with built-in eye-tracking measure gaze within three-dimensional spaces, enabling studies of attention and behavior in simulated environments (Juvrud et al. 2018, 305). However, live eye-tracking testing can also be configured using traditional screen-based units (Thorup et al. 2016, 1-10). In this study, an eye-tracker unit was calibrated to a space in the room that allowed for tracking of a real-time social interaction. Results reveal how participants follow gaze during live social interactions. More complex designs even utilize joint eye-tracking (Oberwelland et al. 2016, 248-260). Such designs can reveal levels of understanding by the participants of the events being observed; successful prediction of events indicated by eye-movements demonstrates an inherent understanding of the action being observed.

Two prominent companies in the field of eye-tracking are Tobii and Smart Eye. Tobii offers a range of products, including portable glasses and desktop systems, with user-friendly software that integrates seamlessly into research workflows. Their technology is well-suited for both tabletop and larp studies, though the high cost of some Tobii devices may be a limitation for smaller research budgets. Smart Eye, on the other hand, provides advanced solutions with a focus on analyzing human behavior in dynamic environments, such as automotive or behavioral research. While their technology is robust and reliable, it may require additional setup and expertise, especially in non-laboratory settings.

## 2.3 Strengths and limitations

Eye-tracking has the potential to be a valuable tool in role-playing studies, whether for tabletop or live-action role-playing (larp), offering a unique and insightful perspective on how participants engage with the environment and stimuli during these interactive experiences. Visual attention plays a critical role in how individuals process and prioritize information, an important component of learning, shaping their decisions and interactions within the game environment (Krucien et al. 2017, 251-267).

One of the primary advantages of eye-tracking in role-playing studies is its ability to provide precise, objective data on where participants focus their attention. This can be critical for understanding how different stimuli, such as objects, characters, or narrative elements, capture attention during the role-playing experience. For example, in TTRPGs and wargames, eye-tracking can be used to study how players divide their attention among various elements like the game master, specific parts of the game board, character sheets, dice, or cards. If a researcher is investigating how the narrative unfolds, they may find that players tend to focus more on the game master when key story moments are introduced, or that certain types of dice rolls, such as those that trigger pivotal events, hold players' attention longer. This kind of data moves beyond subjective reporting and provides insight into which elements of the game truly captivate players' cognitive resources and drive engagement.

More specifically, eye-tracking can reveal how players interact with specific visual cues, such as artwork on character sheets or maps. For example, a study could investigate whether players with visually rich maps spend more time scanning over specific areas, such as locations with hidden treasures, locations with heavy enemy presence, or areas tied to the narrative, compared to other areas of a map. This helps researchers understand the impact of visual stimuli on decision-making, learning, and immersion. What information is visually attended to is predictive of what information is learned (Evans et al. 2011, 503-514). Similarly, if researchers are interested in how players negotiate or cooperate, they might use eye-tracking to observe whether players look to each other for cues or focus on game mechanics when discussing strategies or solving problems.

In larp settings, where physicality and social interaction are central, eye-tracking offers an opportunity to study non-verbal communication, such as how often participants look at others' faces, observe body language, or track the movement of key characters or objects. For example, in a larp scenario involving a murder mystery, eye-tracking could help identify how players' gaze shifts between the murder victim, suspects, and potential clues. Researchers could analyze how players' visual attention correlates with social dynamics: do they look longer at suspects they suspect, or focus on key objects like a blood-stained knife or a letter with mysterious writing? Such insights help researchers better understand the ways players process information in a social, high-stakes environment.

In terms of practical application, eye-tracking offers the advantage of being minimally intrusive. Unlike methods that rely on interviews or surveys, eye-tracking allows participants to engage fully in the role-playing experience without being interrupted or distracted by the researcher or tools. This ensures that the data collected is more naturalistic and reflects the participants' true responses to the role-playing environment, rather than a potential bias introduced by the act of self-reporting or verbalizing their experiences. For example, a study that uses eye-tracking could explore how players process narrative information during a TTRPG session, where participants are free to immerse themselves in the game, and their gaze patterns would be recorded without the need for additional questions or interference during play.

Eye-tracking measures, while valuable, have several limitations. First, they provide data on where individuals look, but this is not necessarily always what they consciously perceive or attend to, which can lead to misinterpretation of attention. Second, eye-tracking equipment can be expensive and technically demanding, requiring careful calibration and controlled conditions to ensure accurate data. Third, the data can be sensitive to artifacts caused by participant movement, poor lighting, or individual differences such as glasses or eye

shape (Carter and Luke 2020, 49-62). Additionally, eye-tracking studies often require sophisticated data analysis to interpret results meaningfully. However, several software packages (such as Tobii Studio and iMotions) simplify and streamline this process, allowing for user-friendly tools for analyses.

## 3. GALVANIC SKIN RESPONSE (GSR) AND SKIN CONDUCTANCE RESPONSE (SCR)

GSR measures changes in the skin's electrical conductivity, which reflect physiological arousal (Sharma et al. 2016, 13-17). While GSR refers to overall changes in skin conductance, including both baseline levels and event-related fluctuations, skin conductance response (SCR) is another term used that specifically measures the short, transient increases in skin conductance triggered by discrete stimuli (Christopoulos et al. 2019, 394-420). Both are used to assess arousal, but SCR focuses on specific responses to events. Here, I will primarily refer to the broader term GSR. To set up and record for GSR and SCR, small electrodes are attached to the skin, usually on the fingers or palm, where sweat gland activity is prominent (see Figure 2). The electrodes measure changes in the skin's electrical conductance as the participant interacts with stimuli or tasks, and this data is recorded by a connected device or software for analysis. Many GSR units (such as those produced by Shimmer) are mobile, connected via wireless technology, allowing participants to freely move or walk around and navigate a space.



**Figure 2:** A GSR unit connected to a participant, ready for data collection.

In psychology and behavioral studies, GSR is commonly used to measure physiological arousal linked to emotional (Dutta et al 2022, 1235; Wilson 1967, 401-402), cognitive (Shi et al. 2007, 2651-2656), or stress-related states (Juvrud et al. 2018, 305). By detecting changes in skin conductance caused by sweat gland activity, GSR provides insights into changes in the autonomic nervous system activity (revealing shifts in physiological arousal, emotional states, and cognitive load), often in response to stimuli like images, sounds, or tasks, making it useful for studying processes such as fear, attention, decision-making, and stress regulation. For example, a study might investigate how individuals respond to stressful decision-making scenarios. Participants might be asked to complete a task where they choose between risky and safe options while their GSR is recorded. Higher skin conductance levels during riskier choices could indicate greater emotional arousal or stress, helping researchers explore the physiological correlates of risk-taking behavior and decision-making under pressure.

### 3.1 Examples of GSR technology

A benefit of GSR is its relatively low costs. Shimmer and Empatica are two companies providing widely used GSR devices. Shimmer's sensors are versatile and compatible with platforms like iMotions, making them suit-

able for both tabletop and larp settings. They are relatively affordable, though they require careful calibration for accurate readings. Empatica offers user-friendly, wearable devices that combine GSR with additional measures like heart rate. Their simplicity and comfort are advantageous, but the devices may be less customizable for specific research needs. To analyze GSR data, it is recommended to use a user-friendly software package, such as iMotions, that can assist in recording, marking, segmenting, and analyzing the data (see Figure 3).



**Figure 3:** An example of GSR signal output from three synchronized players of a table-top game.

### 3.2 Strengths and limitations

GSR is a valuable tool for assessing emotional engagement (Caldas 2020, 1109-1116) in a wide range of game contexts, including role-playing games. Moments of heightened arousal, such as during challenges or during the buildup of tension in a critical game event, or a sudden narrative twist, can be identified through GSR data. By pinpointing these emotional peaks (often measured by number of peaks, peaks per minute, or the amplitude of peaks), researchers gain an objective understanding of players' emotional reactions. During a tabletop game, for example, players may experience heightened emotional reactions to certain events in the narrative, such as the reveal of a plot twist or the outcome of a critical dice roll. By using GSR, researchers can detect increases in the number and amplitude of peaks at these moments, which are indicative of emotional responses like excitement, surprise, or tension. This can provide a more accurate and objective measure of emotional engagement than self-reporting, which may be influenced by biases or a player's ability to articulate their emotional state in the moment, or recall how they felt in retrospective analyses. A researcher could, for example, observe a player's GSR spike just after a major loss of resources or when their character faces a moral dilemma, without needing to ask the player how they felt.

During a larp event involving conflict or intense drama between characters, participants may not only experience emotions through dialogue but also through physical actions, such as combat or social confrontations. Researchers using GSR could track increases in skin conductance during moments of conflict, such as when one character challenges another's motives, is accused of lying or deceit, or when a participant is caught in an unexpected role-playing scenario. Another example could be to explore the depth of character investment. Comparing physiological arousal levels during in-character and out-of-character moments provides insights into the degree of emotional immersion players experience. A player who exhibits heightened GSR responses while role-playing a dramatic confrontation is likely deeply connected to their character's emotions.

Additionally, variations in arousal during cooperative or adversarial interactions can provide clues about how players emotionally navigate social dynamics, such as resolving conflict or cooperating with others. The physiological data highlights the emotional intensity that a narrative or game event provokes, even if the player is not consciously aware of how strongly they are reacting.

GSR is well suited for long recording sessions (Sharma et al. 2016t, 13-17), and therefore can be used to study the emotional pacing of a role-playing experience. By continuously tracking skin conductance throughout a session, researchers can identify patterns of emotional intensity over time. For instance, a researcher might find that players experience steady arousal during a tense larp scenario, only to see a sharp decline in GSR when a more relaxed or humorous moment occurs. This type of data reveals how the emotional arc of a role-playing experience unfolds, showing how tension builds and releases over the course of a session. Such insights are invaluable for understanding how pacing, narrative structure, and player interaction contribute to the emotional engagement and overall flow of the game.

Researchers implementing GSR must ensure that the equipment is non-intrusive and compatible with the activities inherent to role-playing. In larp settings, where physical movement is common, sensors must be lightweight and securely attached to avoid interference. Too much physical movement of the sensors may add unwanted noise to the data. Synchronizing GSR data with precise timestamps is also crucial to align physiological responses with specific gameplay events for detailed analysis. Because the data output is a continuous signal, carefully timestamping key events through manual or automatic markers or video coding is crucial.

GSR is generally minimally intrusive, allowing players to engage fully in the game while their physiological data is being recorded. This makes GSR particularly useful in maintaining the natural flow of the role-playing experience, unlike methods such as interviews or questionnaires that may interrupt or alter the gameplay. Players can be immersed in their roles, with the GSR sensor unobtrusively tracking their physiological responses, ensuring that the data gathered is as natural and representative of their true reactions as possible.

Using GSR also comes with limitations and challenges. The data collected reflects overall arousal, but cannot distinguish between different emotions, such as fear versus excitement. While the data itself might show a particular peak in arousal, it is important to know the context of when that peak occurred. Pairing GSR with other measures, such as eye-tracking, can help determine what specifically may have been contributing to the arousal (such as what the player was looking at during the peak). Other mixed method approaches, such as self-reports, can help provide a qualitative assessment of observed arousal.

GSR is also sensitive to external factors like temperature, humidity, and movement, which can introduce noise into the data. Additionally, the setup requires careful calibration to ensure accuracy. Researchers should account for these factors by controlling environmental conditions, minimizing excessive participant movement, and applying proper signal-processing techniques to distinguish meaningful physiological responses from artifacts.

## 4. HEART RATE MONITORING

Heart rate (HR) and heart rate variability (HRV) are critical indicators of physiological states such as stress, relaxation, and excitement (Kleiger et al. 2005, 88-101; Kranjec et al. 2014, 102-112). Heart rate monitoring measures the number of heartbeats per minute to assess cardiovascular activity, often reflecting overall physiological arousal and stress levels. This is in contrast to GSR, which measures changes in skin conductance due to sweat gland activity, specifically reflecting sympathetic nervous system activation and emotional arousal. Heart rate monitoring provides insights into cardiac activity, capturing fluctuations in stress, relaxation, and autonomic balance (sympathetic vs. parasympathetic activity; Achten and Jeukendrup 2003, 517-538), whereas GSR specifically reflects changes in sympathetic arousal related to emotional or cognitive responses.

Both indicate arousal but provide different physiological insights. You might choose heart rate over GSR if you want to assess broader physiological states like stress recovery, relaxation, or physical exertion since heart rate captures both sympathetic and parasympathetic activity. It is also more accessible and affordable than GSR, requiring less specialized equipment.

A practical example of how heart rate differs from GSR can be seen in a hypothetical study of emotional responses during a larp combat scene. While GSR might show a spike in response to the visual and auditory stimuli of the fight, heart rate measurements can reveal the level of physical exertion involved. For instance, a player might experience a high heart rate from physical exertion, such as avoiding or running from the stress of the confrontation, providing a more accurate measure of the physical impact of the scene. This can be especially valuable in understanding how physical activity in larp influences emotional responses and immersion. GSR, while useful for tracking emotional intensity, does not solely capture the physical strain and excitement associated with an active larp experience, whereas heart rate can provide that layer of detail.

**4.1 Examples of heart rate technology**

Heart rate monitoring typically involves placing sensors on the body to detect cardiac activity (see Figure 4). Common equipment includes chest straps with electrodes that measure electrical signals from the heart or wearable devices like wristbands or smartwatches that use photoplethysmography (PPG) to detect blood flow changes. These sensors transmit data to a connected device or software for real-time monitoring and analysis Figure 4. An example of a heart rate monitor.



**Figure 4:** Smart watch. Photo credit Wikimedia Commons.

Polar and BioPac are widely recognized providers of heart rate monitoring equipment. Polar offers a range of wearable monitors that are both accurate and cost-effective, making them ideal for academic research. However, they may lack advanced features like multi-sensor integration. BioPac, on the other hand, provides high-end systems with extensive customization options and software integration. While their products are more expensive, they offer unparalleled precision and flexibility for complex experimental setups.

**4.2 Strengths and limitations**

Heart rate measures are relevant to role-playing studies, where intense narrative moments or high-stakes decisions often evoke stress-related responses. Monitoring players' stress levels during challenging scenarios provides an objective measure of how gameplay events impact their physiological state (Juvrud et al. 2021, 308-317). For example, an increase in heart rate during a suspenseful moment indicates heightened engagement.

Immersion, a cornerstone of role-playing experiences, can also be evaluated through heart rate data (Malińska et al. 2015, 47-54). Elevated heart rates during climactic events or critical decisions suggest that players are deeply invested in the narrative. Furthermore, analyzing heart rate synchrony among group members can reveal shared emotional experiences. For instance, a dramatic plot twist that elicits simultaneous increases in heart rate across participants suggests a collective emotional response, highlighting the shared nature of the experience.

One of the key advantages of heart rate measurements is the ability to capture a direct physiological response to game events, especially those that involve emotional or physical challenges (Achten and Jeukendrup 2003, 517-538). In a tabletop role-playing game session, for example, heart rate can be an indicator of how players react to pivotal moments in the narrative. If a player's heart rate increases during an intense encounter or when they face a tough decision for their character, this suggests a heightened physiological reaction. In contrast, if the heart rate remains steady or decreases, this could indicate that the player is less invested or that the event is not eliciting a strong physiological reaction. This real-time data allows researchers to pinpoint the specific moments in a game that lead to heightened emotional responses, providing insights into what drives engagement and immersion.

In larp, heart rate measurements can be equally insightful, particularly in understanding how participants react to physical activity, social conflict, and environmental challenges. For example, during a larp session involving a chase scene or a dramatic confrontation, researchers may observe a significant increase in heart rate, signaling that players are experiencing physical exertion or physiological arousal related to the perceived threat or action. The heart rate response during these moments can provide valuable insight into how players experience the physicality and intensity of larp scenarios.

A study by Yannakakis and colleagues (2008, 207-243) suggested heart rate monitoring for capturing and modeling individual entertainment, or fun. By analyzing heart rate dynamics, such as average and maximum heart rate, the study found significant relationships between physiological responses and self-reported fun during gameplay. The study demonstrated that heart rate features can help differentiate between engaging and less engaging game variants, providing a foundation for adaptive game design that responds to player preferences in real-time.

Like the previously mentioned measures, heart rate measurements also offer the advantage of being non-invasive. Players can wear heart rate monitors, such as wrist watches, while remaining fully immersed in the role-playing experience, and the data can be captured without interrupting gameplay. This is particularly useful in larp, where the action is continuous and players are often physically engaged in their characters. Unlike GSR, physical movement is an important variable being considered, and does not constitute noise in the data. Also, unlike methods that require players to pause for self-reporting or questionnaires, heart rate measurements capture data throughout the session, providing real-time insights into emotional and physical responses without disrupting the flow of the game.

Wearable heart monitors are ideal for minimizing disruption, allowing players to remain focused on the game, and are commercially available at relatively low cost. However, researchers must be aware of several limitations. Physical exertion, especially in certain larp scenarios, can elevate heart rate independent of emotional engagement (e.g., running or intense movements), making it difficult to disentangle possible physiological responses. Baseline heart rate can also vary considerably across individuals and even within the same individual. These can be impacted by factors that can easily be overlooked by the researcher, such as sleep, stress, or recent caffeine intake. One common practice is to request participants avoid caffeine intake prior to participation in the study or to report their level of prior caffeine intake. Moreover, heart rate reflects general arousal but cannot reliably indicate the specific emotional valence (e.g., excitement vs. anxiety). These confounds necessitate careful experimental design, such as using pre-session baselines and complementary measures, or pairing with other measures (e.g., eye-tracking) to interpret heart rate data meaningfully in role-playing research.

## 5. FACIAL AND VOCAL EMOTION ANALYSIS

Facial emotion analysis analyzes micro-expressions to identify emotional states (Canal et al. 2022, 593-617; Mohanta et al. 2022, 35). This advanced type of analysis uses advanced algorithms, based on the facial action coding system (FACS; Ekman and Friesen 1978), to detect and categorize facial expressions, providing researchers with real-time data on participants' emotional reactions based on their facial movements. Vocal emotion analysis, often paired with facial analysis, evaluates tone, pitch, and rhythm to capture subtleties in verbal communication (Dai et al. 2015, 777-788; Murray and Arnott 1993, 1097-1108). Together, these tools offer a comprehensive view of participants' social emotional expressions

The depth of role-playing is often reflected in how players express emotions in-character, or navigate social relationships through conflict and resolution (Dinapoli 2009). Facial and vocal emotion analysis can help differentiate between emotional expressions tied to the player's personal reactions and those performed as part of their character's persona. This allows researchers to explore how players inhabit their roles and navigate the boundary between self and character. Additionally, examining emotional responses during group interactions provides insights into conflict resolution and collaborative decision-making processes. For instance, vocal analysis might reveal rising tension in a heated debate, while facial expressions could indicate moments of agreement or hesitation.

### 5.1 Examples of Facial and Vocal Emotion Technology

The equipment required to record facial and vocal emotions is nothing more than a camera and microphone; however, specific software is needed for analysis. To ensure reliable data collection, researchers should use high-resolution cameras for facial analysis in tabletop settings, where participants are relatively stationary. In larp, portable microphones and robust noise-cancellation algorithms are essential to capture vocal data accurately amidst dynamic and potentially noisy environments.

In a study from our lab, we recorded table-top players' facial and vocal data using cameras and microphones attached to the table (see Figure 5 for the setup).



**Figure 5:** Setup for facial/vocal recording can involve a simple web camera and microphone attached to the table. More discrete setups can be achieved with equipment that is smaller in scale or hidden from view.

Affectiva and Emteq Labs are leaders in facial emotion analysis software. Affectiva's Emotion AI technology specializes in detecting nuanced emotional states through facial expression analysis, making it ideal for capturing subtle in-game reactions. However, its reliance on high-quality video input may pose challenges in dynamic larp settings. Emteq Labs offers innovative smart glasses with integrated facial movement sensors, providing a mobile solution for larp studies. While these glasses are cutting-edge, their cost may limit accessibility. For vocal analysis, software like audEERING, Praat, and Sonde Health provide robust tools for

analyzing vocal tone and rhythm. Praat is open-source and highly customizable, but it requires a steep learning curve. audEERING and Sonde Health are user-friendly and provides detailed vocal emotion insights but may lack the versatility of more advanced platforms. iMotions is a useful software with packages from Affectiva and audEERING with built-in user-friendly analyses options, including synchronizing facial and vocal data.

## 5.2 Strengths and limitations

The use of facial emotion analysis in role-playing studies can allow for a deeper understanding of how participants engage with and emotionally respond to various game scenarios, characters, and interactions. One of the primary benefits of facial emotion analysis is its ability to provide continuous, unobtrusive data on emotional responses throughout a role-playing session. Role-playing games, especially immersive ones like larp, often prompt players to respond emotionally in ways that they might not fully process or articulate. In contrast to self-report methods, which may be biased or fail to capture immediate emotional reactions, facial emotion analysis offers a direct measurement of participants' emotions in real-time. For example, in a tabletop role-playing game session, facial emotion analysis can track how players react to specific narrative developments, such as the introduction of a plot twist or the death of a beloved character. Researchers can observe how emotions like surprise, sadness, or joy manifest on players' faces at key moments in the game. This real-time data can be invaluable in understanding how specific game events trigger emotional engagement, providing insights into what aspects of the game are most emotionally impactful.

As an example, researchers could use facial emotion analysis to study the emotional response of players when a dramatic moment occurs, such as a character facing a moral dilemma or during a social conflict. The analysis might reveal that a player's expression shifts from neutral to a mix of surprise and concern, providing insight into how the gameplay moment is affecting them emotionally. This information can be used to gauge how well the game's storyline or the choices players are given resonate emotionally. If the emotional intensity is high, as shown by expressions like surprise, fear, or joy, researchers can assess the effectiveness of the narrative or the game's emotional pacing. This can offer valuable feedback on how the game design supports emotional engagement and immersion.

Vocal emotion measurements provide a unique advantage over other methods like self-reporting or physiological measurements, as it directly captures the emotional state through vocal expression, which is often an unconscious and immediate response to emotional stimuli. In the context of role-playing studies, vocal emotion analysis allows researchers to gain detailed insights into how players express emotions and how these expressions align with the events and dynamics of the game.

One of the main benefits of vocal emotion measurements is their ability to capture the subtleties of emotional expression that might not be visible or easily quantifiable through other means. For example, in both TTRPGs and larp, players may not always show their emotions through facial expressions or body language, particularly when they are deeply immersed in their characters or trying to maintain a level of composure. However, their voice is a key indicator of their emotional state, often revealing feelings of tension, excitement, fear, joy, or frustration. A study using vocal emotion analysis can uncover how players' emotional states fluctuate as they engage with different aspects of the game, such as the narrative, interactions with other characters, or unexpected events.

In both tabletop role-playing games and larps, much of the emotional content arises from social dynamics, such as conflict, negotiation, collaboration, or competition between players (Balzac 2016; Bohart 1977, 15; Powers and Kirkpatrick 2013, 51-72). By analyzing changes in the voice (pitch, tone, and rhythm) and facial expressions, researchers can assess how players express and respond to the emotions of others in the game. For example, during a tense negotiation between characters, the voice of a player might become more controlled, lower in pitch, and slower in tempo to convey assertiveness or calm, while another player might speak more quickly or loudly to express agitation or frustration.

The use of facial and vocal emotional analysis in role-playing studies has several limitations. One major challenge is the potential for misinterpretation or oversimplification of complex emotions, as facial expressions and vocal tones do not always convey the full spectrum of an individual's internal emotional state. Cultural differences and individual variability in expressing emotions can further complicate accuracy, leading to biased or inconsistent results. Additionally, the context of role-playing may involve deliberate exaggeration or suppression of emotions, making it difficult to distinguish authentic emotional responses from those performed for the role. Technological limitations, such as the sensitivity and precision of emotion detection algorithms, can also result in errors, particularly in dynamic, interactive settings where overlapping stimuli and rapid shifts in emotion are common. These factors collectively highlight the need for cautious interpretation and complementary methods to ensure robust findings.

## 6. INTEGRATING MULTIPLE PSYCHOPHYSIOLOGICAL MEASURES

Integrating multiple methods offers unique and complementary insights into players' emotional and psychological engagement with the game. Each of the methods described here provides different kinds of data which, when combined, create a more holistic and nuanced picture of how participants interact with the game, their characters, and the narrative. For example, GSR data can reveal to me when there was an emotional arousal in a player; but combined with facial and vocal analyses, I can also determine the valence (positive or negative) of that emotion (see Figure 6). Paired with eye-tracking data, I could also identify what the player was looking at and what information was being processed that led to the emotional arousal.



**Figure 2.** Player B is first accused of being the werewolf (a), then Player B attempts to bluff/lie (b), following by the start of the voting of who to eliminate (c).
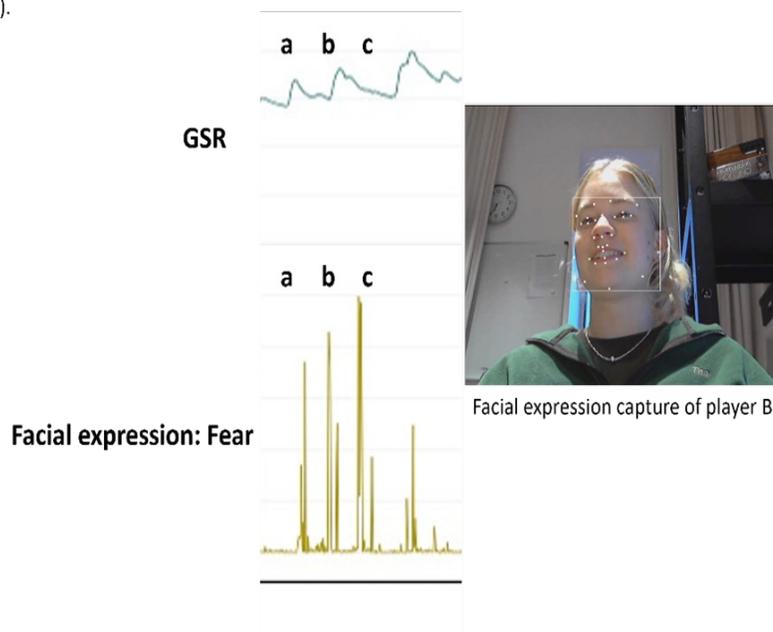
**Figure 6:** An example of data with integrated GSR and facial analysis measures in a study looking at deceit and trust in a role-playing game in Player B. In this example, player B is accused of being deceitful (a), followed by Player B trying to bluff and lie (b), and finally the player is chosen to be removed from group by the other players because they do not trust her (c). The integration of GSR and facial analysis allows us to measure and synchronize the emotional arousal and facial expression of fear during these key events.

One of the primary advantages of integrating these methods is that each tool provides a different perspective on the player's experience. For instance, heart rate and GSR both measure physiological arousal, but

they reflect different aspects of emotional and physical engagement. When combined, these measures offer a more comprehensive understanding of emotional intensity. Similarly, combining eye-tracking with facial emotion analysis can provide insights into players' cognitive and emotional engagement. By combining these methods, researchers can correlate where players focus their attention with their emotional responses, offering insights into how specific game elements, such as a dramatic plot twist, a conflict with another character, or a challenging puzzle, impact both cognitive engagement and emotional reactions. This combination of data helps researchers understand not just what players are focusing on, but also how they feel about those elements and why they are drawn to them.

Integrating these methods also enhances the validity and reliability of the findings. By using multiple data sources, researchers can cross-validate results, ensuring that the emotional and physiological responses they observe are not an artifact of a single measure. For instance, if facial emotion analysis shows an increase in joy but GSR indicates a decrease in arousal, the combination of data would suggest that the player is experiencing a positive emotional response but at a lower level of physiological arousal, potentially reflecting a more relaxed form of joy or contentment.

## 7. CASE STUDY: INTEGRATING PSYCHOPHYSIOLOGICAL MEASURES IN A ROLE-PLAYING GAME

The case study explored deception and emotional responses in the context of a social deduction game involving light role-playing, *The Last Vampire*, using integrated psychophysiological measures. Specifically, we employed GSR, facial emotion analysis, and vocal emotion analysis to examine participants' reactions during key moments of social deception play, such as moments of accusation. These tools were chosen to provide a comprehensive assessment of arousal and emotional expression in scenarios involving deception. The full data analyses from this case study are prepared for publication in a separate manuscript; therefore, this paper will focus solely on the methodological considerations involved in designing and implementing the experiment.

Forty-one participants (22 female, 15 male, 4 other) participated in the study across 9 testing sessions ($n$ = 5 per session). Participants ranged in age from 18 to 29 ($M$ = 21, $SD$ = 1.94). A total of 33 participants self-reported as white, six participants self-reported as Hispanic, Latino, or Spanish origin, three participants self-reported as Asian, two participants self-reported as Black or African American, three participants self-reported as multiethnic, and one participant self-reported as Middle Eastern or North African. All participants provided informed consent and received a 5€ gift voucher for participating. The study was conducted in accordance with the standards specified in the 1964 Declaration of Helsinki and approved by the local ethics committee.

The study was an experimental between-subjects design, with a focus on specific game events related to deception. GSR was used to measure participants' physiological arousal through skin conductance. This method tracked changes in arousal during critical moments of the game, particularly when participants were accused of being the vampire, requiring them to either lie or defend their innocence. The GSR device provided data on skin conductance peaks and average amplitude, offering insights into the physiological responses associated with these accusations.

Facial emotion analysis was conducted using Affectiva AFFDEX, a technology that detects and categorizes emotional expressions from participants' facial cues. This analysis focused on emotions such as anger, joy, sadness, neutrality, and fear, allowing researchers to observe how these emotional states were expressed during accusations. Similarly, vocal emotion analysis was performed using AudEERING voice technology, which analyzed participants' vocal tones and patterns to identify emotions such as happiness, sadness, anger, and neutrality. Both facial and vocal emotion analyses aimed to capture participants' outward emotional responses as they navigated the game's accusations and social dynamics.

Six cameras and microphones were set up, one focused on each participant's face and voice, and one capturing the full table (see Figure 7 and Figure 8). Three participants wore Shimmer3 GSR+ devices, attached to their ring and middle fingers, to measure physiological arousal via skin conductance, while two others wore identical decoy devices to maintain role anonymity and prevent bias. Facial emotion analysis was conducted using Affectiva AFFDEX, which analyzed participants' facial expressions from video recordings, and vocal emotion analysis utilized AudEERING technology, capturing audio via microphones integrated with the cameras. All data streams, including GSR, facial expressions, and vocal cues, were synchronized and analyzed using iMotions software, which also annotated and extended accusation periods to ensure precise capture of physiological and emotional responses during gameplay.
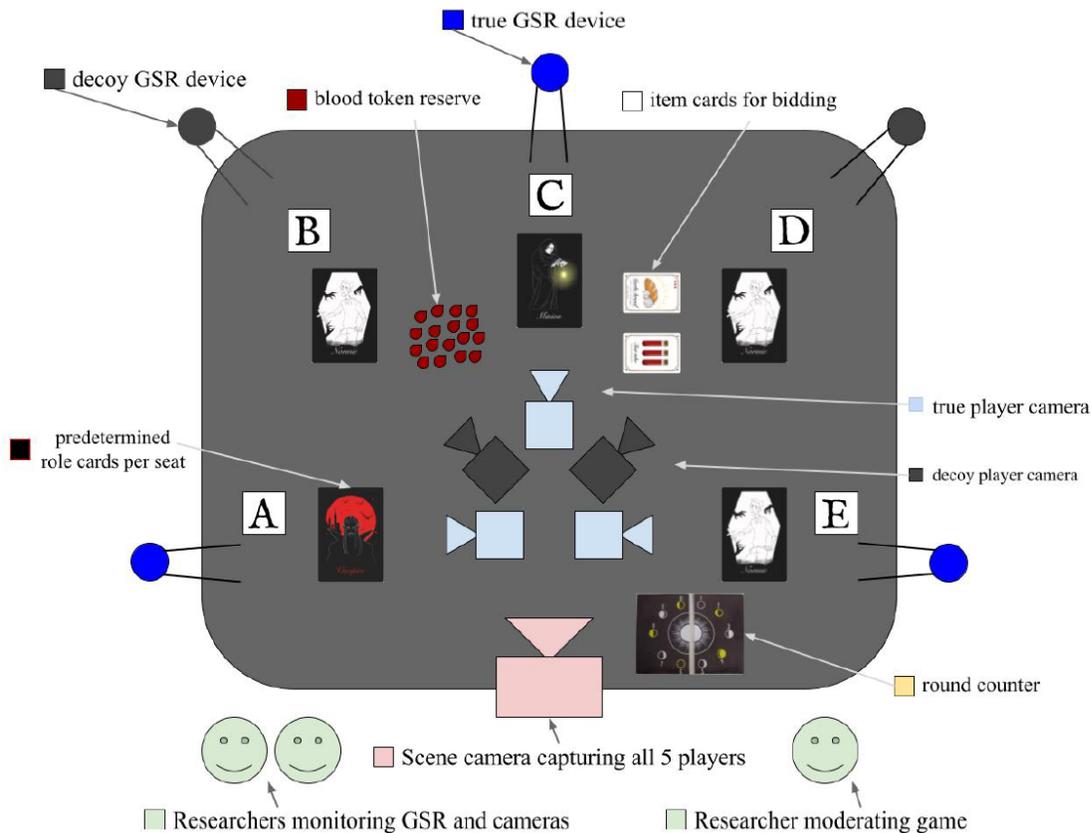


**Figure 7:** The diagram shows a setup for a table-top role-playing game, including the various game components and the equipment setup. In this study, participants were recorded via camera and microphone (center of table) for facial and vocal emotion analysis and were connected to GSR units to measure arousal. For the study design, only certain player roles were of interest to the research question; therefore, "decoy" units were used so that participants were not aware of whose data was actually being recorded.

Integrating GSR, facial emotion analysis, and vocal emotion analysis within this study allowed for a multidimensional examination of participants' responses during moments of accusation in the table-top game. Each method contributed unique insights into how individuals experienced and expressed emotions under pressure. GSR provided data on physiological arousal, capturing participants' heightened states of stress or engagement when accused of being the vampire. However, arousal alone does not reveal the nature of the emotional response: whether participants felt anxiety, anger, or excitement. Facial emotion analysis complemented this by identifying outwardly visible emotions, such as joy, anger, or fear, while vocal emotion

analysis provided additional layers of understanding by detecting emotional cues embedded in participants' speech patterns.



**Figure 8:** A photograph of the diagram presented in Figure 5, showing the setup of a table-top role-playing game. The experimenter sat at a separate table and monitored the various sensors (background) while the participants played the table-top game (foreground).

The integration of these methods was critical in uncovering the interplay between internal physiological states and external emotional expressions. For instance, the study revealed that while GSR data indicated similar arousal levels across guilty and innocent players during game moments of deception, facial and vocal analyses helped explore how emotions were outwardly displayed, highlighting nuances like anger or joy during specific types of accusations. Combining these measures also allowed us to identify potential inconsistencies between physiological and behavioral responses, offering insights into strategies participants may use to mask guilt or maintain credibility. By using these complementary methods together, the study provided a richer understanding of the complex dynamics of deception and emotional responses in social interactions.

## 8. MORE ADVANCED TOOLS: NEUROPHYSIOLOGICAL MEASURES

While this review has focused on peripheral psychophysiological, it is important to acknowledge that more direct measurements of brain activity are also being explored in role-playing research. These include electro-encephalography (EEG), functional magnetic resonance imaging (fMRI), and functional near-infrared spectroscopy (fNIRS), each offering the potential to investigate the neural correlates of cognitive, affective, and social processes during role-play.

Hyperscanning techniques, in particular, are gaining traction as tools to study the neural synchronization between individuals engaged in social interaction. Wireless EEG systems, such as the Emotiv EPOC+,

have been used in exploratory studies attempting to capture multi-person brain activity in ecologically valid scenarios, such as tabletop role-playing game sessions, larp events, and even boffer combat practice. Similarly, dual-subject fMRI scanners are becoming available and allow simultaneous brain imaging of two participants, albeit within tightly constrained physical settings. fNIRS provides a promising middle ground, with greater portability and reduced intrusiveness compared to fMRI, though it offers lower spatial resolution and is still sensitive to movement artifacts and signal noise.

Despite their promise, these methods introduce significant practical and methodological challenges. They require more extensive technical expertise, involve complex preprocessing and analysis pipelines, and are typically constrained to highly controlled or stationary environments, conditions that are often at odds with the spontaneous, mobile, and improvisational nature of live-action role-play or even certain tabletop formats. Moreover, the financial and logistical demands of acquiring and operating neuroimaging hardware can be prohibitive for many researchers in the field.

Given these considerations, we chose to focus this paper on more readily deployable, cost-effective, and minimally intrusive measures. These tools are not only more feasible for researchers operating in naturalistic gaming settings, but they also offer robust and meaningful insights into player engagement, emotion, and social interaction without disrupting the immersive flow of gameplay.

Nevertheless, neurophysiological approaches represent an important direction for future research. Their capacity to probe brain activity during role-play makes them a valuable complement to peripheral measures. Future work, particularly in more controlled or hybrid lab-field environments, may benefit from integrating these technologies to deepen our understanding of shared cognition, emotional synchrony, and embodied narrative experience in collaborative play.

## 9. CHALLENGES AND FUTURE DIRECTIONS

Despite the promise of psychophysiological measures, several challenges must be addressed to optimize their integration into role-playing studies. While these measurements offer valuable insights into emotional responses, interpreting the data can be challenging due to the complex nature of human emotions. Researchers should have clear a priori plans for these measures or be clear about their observations in an exploratory manner (Lieberoth and Roepstorff 2015, 271-289). Emotional expressions can be context-dependent, and participants may exhibit similar physiological or behavioral responses to different emotions. Each participant responds to stimuli differently, and this variability can complicate the interpretation of results. People with conditions like social anxiety or autism spectrum disorder (ASD) may show variations in psychophysiological measures (De Los Reyes et al. 2012, 308-322; Zantinge et al. 2017, 1499-1509). For example, individuals with ASD might exhibit different facial or vocal emotion expression patterns (Trevisan 2018, 1586-1601), which could influence the results of facial emotion analysis and vocal emotion measurements. Researchers must be cautious in interpreting individual variations.

Another key consideration is the incorporation of experimental design principles, particularly the use of appropriate control groups and baseline conditions. Across all measures described here, to isolate the specific effects of role-play and character immersion, researchers should consider collecting psychophysiological data not only during gameplay but also during structured pre- and post-session activities. These might include a quiet baseline condition (e.g., sitting still), as well as social interaction tasks that involve no gaming or role-playing elements. Such comparisons help control for general arousal or social engagement effects and provide a more precise understanding of what is unique to role-playing scenarios. Additionally, distinguishing between types of role enactment, such as narrative-driven character immersion versus strategic or rule-based decision-making, requires careful experimental contrasts to avoid interpretive confounds and ensure the validity of inferences drawn from physiological data. This may require experimental designs that utilize control groups or other comparison groups.

Ethical considerations also warrant careful attention. While the data collected is generally non-identifiable, there are still privacy concerns about the storage and potential misuse of such sensitive information. Facial emotion analysis, in particular, involves recording participants' facial expressions, which may be perceived as intrusive or invasive by some individuals. In some studies, participants might not fully understand the scope of the data being collected, leading to concerns about informed consent. Researchers must ensure that participants are fully aware of what data is being collected, how it will be used, and how their privacy will be protected. Psychophysiological data, while invaluable for understanding cognitive and emotional states, often intersects with sensitive health-related information. For instance, heart rate monitors may incidentally detect irregularities such as arrhythmias, and facial emotion recognition systems could infer depressive symptoms or other mental health indicators. This blurring of lines between behavioral data and medical data introduces complex ethical and legal considerations. Researchers should be aware that, depending on the jurisdiction, such data may fall under regulations typically reserved for health information, such as the Health Insurance Portability and Accountability Act (HIPAA) in the United States or the General Data Protection Regulation (GDPR) in the European Union.

The cost and resource requirements for using these tools can be a limitation, particularly in large-scale studies. Eye-tracking devices and analysis software in particular can be expensive, and implementing multiple measurement methods simultaneously can significantly increase the cost of the study. Additionally, these tools require technical skills for setup, calibration, and analysis, which can further increase the time and resources needed for the study. While many of the equipment and software are user-friendly, for researchers with limited budgets or those conducting studies with large groups, the use of such tools might not be feasible. Researchers may opt for more cost-effective measures, such as heart rate monitors, although potentially limiting the scope and scale of the research.

Moreover, given the potential sensitivity and complexity of psychophysiological research, especially in live or semi-naturalistic environments like role-playing studies, it is essential that researchers engage with institutional ethics bodies from the earliest stages of study planning. Submitting detailed experimental protocols to Institutional Review Boards (IRBs) or Ethics Committees, including procedures for participant recruitment, consent, data management, and debriefing, is not only a requirement in many jurisdictions but a foundational practice in ethical research. Researchers should also follow standards outlined in frameworks such as the Declaration of Helsinki, which emphasize participant welfare, transparency, and the dissemination of all results, including those that are inconclusive or negative. This is particularly important in a developing area like psychophysiological role-playing research, where a comprehensive body of evidence, including null findings, will be essential for building robust and reliable methodological standards.

It is also worth reiterating that some familiarity with the technology, software, and statistical analyses techniques is required. There are various complexities in analyzing and interpreting psychophysiological data. Integrating data from multiple modalities, such as combining eye-tracking with GSR and facial emotion analysis, requires more advanced analytical techniques. Handling these issues requires advanced analytical tools, expertise, and time, and may limit the scalability of studies that use these combined methods.

Finally, expanding the scope of psychophysiological research to include diverse participant populations and role-playing contexts will enhance the generalizability of findings. Exploring cross-cultural differences in emotional expression, for instance, could provide valuable insights into the universality and variability of role-playing experiences. Additionally, incorporating non-traditional role-playing formats, such as educational or therapeutic applications, may reveal new opportunities for leveraging psychophysiological tools.

## 10. CONCLUSIONS: WHY PSYCHOPHYSIOLOGICAL MEASURES MATTER IN ROLE-PLAYING STUDIES

Role-playing games, whether a wargame or a larp, are immersive experiences that demand high levels of engagement. Psychophysiological measures provide objective data on engagement, how participants interact

with the game world and each other. The inherently social nature of role-playing games also makes these measures ideal for studying group behavior and social engagement. Synchrony in heart rate among players, for example, may indicate shared emotional experiences, or facial emotion analysis can reveal subtle cues in group communication. Psychophysiological tools can therefore be valuable for researchers interested in uncovering patterns in areas such as leadership, collaboration, and conflict.

Immersion is a cornerstone of role-playing games, where, if designed well, players can lose themselves in their characters and the narrative. The ability to fully engage with the game world enhances not only the entertainment value but also the psychological and emotional experience. Psychophysiological measures offer a powerful means of assessing these immersive states by capturing physiological data that can reveal moments of deep emotional and cognitive involvement. Measures such as heart rate, skin conductance, and eye movements, can provide valuable insights into the intensity of immersion and presence, identifying when players are most deeply connected to the game. By analyzing these physiological responses, researchers and game designers alike can gain a clearer understanding of the factors that facilitate immersion, allowing for the refinement of game design and the creation of more engaging and impactful experiences.

Ultimately, incorporating psychophysiological data into game design processes holds the potential to enhance not only gameplay but also the emotional and cognitive effects, leading to learning and transformation, that role-playing games can have on players. Their contribution to levels of observation is further enhanced when integrated into a mixed-methods approach, combining them with ethnographic measures such as interviews and surveys. A mixed method approach treats each methodological approach as valuable on its own, while allowing for different levels of detail. It is highly beneficial for the field of role-playing studies to continuously challenge and push the boundaries of traditional ontologies and methodologies. This approach fosters innovation, expands analytical perspectives, and enhances the depth of understanding in the field.

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**Joshua Juvrud** is an associate professor in Game Design at Uppsala University, where he previously received his Ph.D. in Developmental Psychology. As a research psychologist, his work has focused on the ways that novel techniques in research (eye-tracking, pupil dilation, virtual reality) can be used to assess how children and adults perceive and interpret people, emotions, and actions. Juvrud focuses his research in two fields. In developmental psychology at the Child and Baby Lab in Uppsala, he seeks to understand how children learn about their world through social cognitive processes, such as play. In games research at the Games & Society Lab at the Department of Game Design in Visby, Gotland, his work examines the psychology of people, their actions, and emotions in game development, player engagement, learning, and immersion. He aims to understand better how different game players (with different personalities, traits, and experiences) interact with various game mechanisms and are, in turn, affected by game experiences.

# Tabletop Role-Playing Games for Teamwork:
# A Pilot of a Methodology for Developing Socio-emotional Skills

**Abstract:** The rapid growth of the Information and Communication Technologies (ICT) sector in Chile has highlighted the need for workers to develop "soft skills" beyond their technical knowledge. These soft skills, including teamwork, empathy, adaptability, and leadership, are essential for professional success and societal well-being. However, the Chilean education system has been identified as insufficient in incorporating soft skills into formal education, leaving many ICT sector applicants lacking these crucial abilities. BS&G Taller de Innovación has implemented role-playing game workshops to address this issue and enhance the soft skills of participants.

This exploratory study involved 80 hours of role-playing games with 10 teams, primarily from the Information and Communication Technologies sector. The results indicate statistically significant changes in task, production, and adaptability, as well as in two items related to entrepreneurial leadership self-efficacy. Empathy did not show significant changes, but some trends were observed. The role-playing game workshops provided participants with a unique opportunity to develop social and emotional skills in a cooperative and engaging environment, strengthening interpersonal relationships and communication within teams.

While the logistics and execution of the workshops were successful, there were several considerations for improving the methodology in the future, such as adjusting the time commitment, providing clearer instructions for newcomers, incorporating audiovisual material, and enhancing interactivity. Overall, the study demonstrates the potential of role-playing games as a viable, attractive, and unconventional method for developing soft skills in the ICT sector and beyond.

**Keywords:** game-based learning, experiential learning, social-emotional skills

**Felipe García-Soriano**
Universitat d'Alacant, Spain
*figs1@alu.ua.es*

**Francisca Faret Moreno**
Universidad de Chile
*franciscafaret@gmail.com*

**Daniel González Cohens**
Tampere University, Finland
*dandresgc@gmail.com*

## 1. INTRODUCTION

In this article we present the results of a pilot for a methodology for fostering the development of social and emotional skills based on tabletop role-playing games (RPGs), which was tested on workers in the Information and Communication Technologies (ICT) sector.[1] A tabletop RPG is a type of game in which participants assume the roles of characters and, through them, create a story. Participants determine their character's actions based on their characterization, and their actions may or may not succeed as determined by the use of a game ruleset.

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[1] **Editorial note:** This article is a translation of a peer-reviewed version originally published in 2023 in *La Revista de Estudios sobre Juegos de Rol y STEAM* (English: *Journal of Roleplaying Studies and STEAM*). Special thanks to the journal's Editor-in-Chief, Cristo León, for doublechecking the translation.

Despite the lack of extensive evidence that can help establish the effectiveness of tabletop RPGs in the transmission and incorporation of social and emotional skills in the workplace, there is evidence of their effectiveness in other contexts (Clarke et al. 2018), as well as of other game-based methodologies in work settings (Calabor, Mora, and Moya 2018).

Additionally, the Information and Communication Technologies sector has been singled out as featuring a significant gap in workers' socio-emotional skills (Observatorio Laboral Metropolitano 2019). Given that workers in this sector have similarly-aligned personal interests, they may be particularly receptive towards a game-based methodology that helps in developing said skills (Yukio and Cunha 2019).

This methodology aimed to be a focalized and experimental intervention, as well as an innovation in the deployment of new training methodologies. With this objective, we worked with 10 teams of professionals, mostly within the ICT sector, coming from 6 different companies in Santiago de Chile, during the year 2021. We measured the participants' social and emotional skills both before and after the intervention to verify the effect of the intervention and evaluate its effectiveness.

The main goal of this research was to evaluate the results of the tabletop RPG-based methodology for the development of skills related to teamwork in ICT workers and their teams. The secondary goals were the following:

- Study the effects of a methodology based on tabletop role-playing games in the development of skills related to empathy, conflict resolution, adaptability, and leadership.
- Deploy and refine the tabletop RPG-based methodology towards the development of skills related to teamwork.
- Promote the relevance of recreation, play, and leisure in the workplace.

## 2. CONTEXT

### 2.1 Soft skills

According to the Metropolitan Labor Observatory (Observatorio Laboral Metropolitano, o OLM por sus siglas en español) (2019) of the Chilean Ministry of Labor and Social Security, one of the main issues faced by workers and applicants in the ICT sector in Santiago is a gap in the development of their so-called "soft skills," which leads to an over-prioritization of their own technical skills. Addressing this gap is urgent, given that it has been identified as a strategic productive sector by key stakeholders both within it and across other areas of the economy.

In the case of the ICT sector, there is an observed consensus among employers and educators regarding the desirability of socio-emotional skills in new hires, which even outrank technical skills and knowledge (Aasheim, Li, and Williams 2019). This is doubly relevant since, over 10 years ago, Chile was identified as one of the nations with the highest expected growth in the ICT sector within the region, which would improve local business profitability (Godoy 2006), provide a better chance of insertion in the globalized world (Instituto Español de Comercio Exterior 2011), and enhance entrepreneurship and governance within the country (Gobierno de Chile 2015).

By "soft skills," we refer to a wide set of capabilities and knowledge such as personal attitude, skills, habits, and practices that can be combined to maximize the effectiveness of one's own work. In this context, they are considered equally or more important than traditional qualifications and technical skills for achieving professional success (Matturro 2013). Specifically, according to the OLM's report on national skill gaps, they are considered essential for "dealing with clients, since it helps with developing trust, identifying customer needs, adapting potential solutions, and providing higher-quality service" (Observatorio Laboral Metropol-

itano 2019, 33). Informants in said report identified four key aspects to be developed: leadership, teamwork, empathy, and adaptability.

The incorporation of soft skills in the curriculum for formal education is an unresolved issue in Chile, where deficiencies have been identified at the preschool level (Arzola and Camhi 2013), throughout mandatory education (Busso et al. 2012), and reaching university-level training in the case of teachers (Ruffinelli 2013; Vera 2016). The chances of an applicant in the ICT sector having developed these skills before joining the workforce are so unlikely that companies are forced to either contract or create workplace training programs that address this gap. This problem has been identified previously in other productive sectors by the National Productivity Commission (2018), which extends the relevance of addressing the gap towards the rest of the economy.

Prior research suggests that a person's success does not only depend on their academic skills and acquired knowledge (Jones and Doolittle 2017), but also that social and emotional skills play an important role in their lifetime achievements (Chernyshenko, Kankaraš, and Drasgow 2018). The development of these skills shows an effect on individuals' wellbeing, as well as that of the rest of society (Chernyshenko, Kankaraš, and Drasgow 2018). Ongoing social transformations demand that individuals develop new ways of thinking and relating to each other, as well as the flexibility and capacity for adapting to change as they occur (OECD 2018).

Another factor is that, at the time this intervention was designed and deployed, the legal maximum hours a full-time employee could legally work for was 45 hours (International Organisation of Employers 2024). In the face of high work loads and extensive working hours, the risk of worker burnout increases (Ramírez Pérez and Lee Maturana 2011), which directly impacts company productivity. This risk increases in institutions where workers engage with constant digital stimuli (Arias Gallegos and Masías Salinas 2014).

In response, over the past 20 years there has been an ongoing push towards overcoming the leisure-business dichotomy and towards inverting the colonization of leisure time by the logic of labor, offering increased space for leisure in the workplace instead (Rul-lán 1997). This would benefit the wellbeing of individuals and teams through the introduction of learning-oriented play spaces in the workplace, which would additionally serve to reduce time dedicated to distracting activities (Miquilena Colina 2011).

## 2.2 Tabletop Role-Playing Games and skill training

On its own, role-play – as a playful practice based on participants taking on the roles of fictional characters (Bowman and Lieberoth 2024) – is a well-known tool for developing soft skills in fields such as occupational therapy (Marchetti and Petersen 2019) and medical training (Nestel and Tierney 2007). Tabletop role-playing games, however, remain underutilized as tools for learning (Hammer et al. 2024).

A Tabletop Role-Playing Game is a kind of game in which participants assume the roles of characters and, through them, collaboratively tell a story. Participants determine their characters' actions based on their own characterization, which may or may not be successful as determined by the use of a game ruleset. Within the boundaries collectively enacted by the rules, participants may improvise freely. One of the participants is the Game Director, with the responsibility of managing the process of play, giving form and direction to player action (Zagal and Deterding 2024).

One important advantage that tabletop RPGs hold over other kinds of game is that every player interprets a unique character, with particular characteristics and personality, which remains consistent throughout play according to player interest, game elements, and the guidelines provided by the Game Director. This allows participants to engage with their own characters in a focused and consistent manner, and safely explore an alternate identity that is as familiar or as foreign as desired (Bowman and Schrier 2024).

This happens in the context of players pursuing a common goal during play, where effective collaboration and coordination are essential. Therefore, the characters enacted by the players may complement each other; some may excel in physical skills and capabilities, others in intellectual or social approaches, and, if the game allows for it, some may even display mystical abilities such as magic. Being in touch with the other participants' interests and goals during play, as well as their social cues and reactions, is an integral part of achieving the group's goals and a good play experience (Bowman 2024).

The most popular approach towards skill development using games has historically been that of Serious Games (Calabor, Mora, and Moya 2018), in which education is the objective instead of entertainment (Romero, Usart, and Ott 2014). In this context, games offer participants a space for learning based on simulating real-world situations, allowing for practicing skills with reduced consequences for failure (Hammer et al. 2024), and focusing their attention towards relevant information as part of the designed game experience (Cutting and Deterding 2024).

With all of the above in consideration, tabletop RPGs have caught attention for their potential in implementations beyond entertainment across different fields (Arenas, Viduani, and Araujo 2022; Daniau 2016). However, while examples of using tabletop RPGs for the development of soft skills do exist (Chilana 2022; Lee et al. 2018; Veldthuis, Koning, and Stikkolorum 2021), there are few cases that specifically focus on the workplace. Most of the instances of skill development found center on workshops or mentorship and coaching processes (Porras Velásquez 2016), which are proven methods that have inspired our research design. However, our research tries to argue that play on its own terms, practice, and design can enhance the development of soft skills in participants, promoting personal development and localized social change in their environment (Bowman et al. 2024).

## 3. METHODS

### 3.1 Research Focus

We carried out our research focusing on workers in the Information and Communication Technologies sector. Prior research has shown that people that choose career paths that lead into this sector usually do not focus on developing their social skills, and that their chosen formal education tracks rarely help to correct on that issue (Marcos and Cavero Barca 2003). At the same time, multiple reports (Comisión Nacional de Productividad 2018; Observatorio Laboral Metropolitano 2019) emphasize the importance of soft skills in this sector. On the other hand, an important proportion of ICT workers are young adults, an age segment where cultural consumption focuses on television series, movies, video games and, most relevant for our analysis, board games, with a noticeable preference towards fantasy fiction (Yukio and Cunha 2019).

Previous research has demonstrated the efficacy of experiential learning experiences where the construction of knowledge is promoted through a process of reflection and experience-focused meaning-making. We argue that the simulation enabled by tabletop RPGs is a good way to develop soft or social and emotional skills.

This methodology aims to ensure that the tools for the development of soft, or transferable / transversal, skills defined here serve to train Information and Communication Technologies workers in particular. While there already are methodologies that address this same issue, they do not specify productive sectors as part of their target audience. Consequently, this research aimed at making the tools and methodology developed available to all stakeholders who wish to explore their potential.

Based on the report of the Metropolitan Labor Observatory (2019), we chose the key variables to be studied: teamwork (understood to be the central concept throughout this research), empathy, adaptability, and leadership. The definition of each of these constructs, which were developed based on three psychometric

scales validated in the Chilean labor context, are provided below. These are presented in greater depth in the instrument description section.

This study was exploratory in scope, since our decision to use an innovative and emerging methodology meant that we would not have points of comparison to other alternatives. Our approach combined quantitative and qualitative methods. The following sections present the sample and the description of the instruments used in both cases.

**Table 1:** Definition of variables. Own production, based on Madrid, Díaz, Leka, Leiva & Barros (2018); Madrid (2020); Moriano, Topa, Molero, Entenza, & Lévy-Mangin (2012).

| Variable | Definition |
|---|---|
| **Teamwork** | Communication, coordination, cooperation and support skills. Leadership in the context of the dynamics between team members. |
| **Empathy** | Concern and compassion for other people, understanding of opinions and points of view different from one's own. |
| **Adaptability** | Individual orientation for fostering effective task resolution, resilience against changes in the workplace, and a proactive attitude when proposing new ideas and innovative solutions. |
| **Leadership** | Ability to create and lead teams from a collaborative approach; to create innovative environments that foster the expression of ideas, self-efficacy and autonomy; to face unexpected challenges and provide a perception of success in projects, in addition to celebrating the team's achievements. |

### 3.2 Information Production

This research was carried out throughout the year 2021 in Santiago, Chile. We conducted tabletop RPG play sessions in an online and synchronous context. The initial design of our intervention intended for play sessions to be carried out in-person. However, before we could begin, the COVID-19 pandemic occurred, which forced us to re-design our intervention with the nation-wide quarantines in mind. The play sessions were carried out by the consulting firm "BS&G Taller de Innovación". The sample comprised a total of 49 participants distributed in ten work teams, from six different organizations. Five of them were companies in the ICT sector of various sizes, and the last organization was a municipal administrative body. The ages of the players ranged from 25 to 57 years old.

Additionally, to obtain an expert opinion on the design of the workshops, we invited four professionals, whose areas of work are related to ludic methodologies and Game-Based Learning approaches, to participate in the experience. This "expert panel" constituted the tenth team in the sample. This panel contributed to the research from their professional perspective, but also as a team participating in the workshops, going through the same play experience as the rest of the teams. While the experts were integrated as players, in order not to distort the results, they were not considered for the quantitative data analysis.

The production of information for the general teamwork construct was carried out using qualitative techniques with open-ended questions in self-administered questionnaires pre and post-intervention. In addition, group conversations were held once the teams reached the end of the game module in order to reflect on the overall experience. All conversations were recorded and subsequently transcribed.

On the other hand, the concepts of empathy, adaptability, and leadership were worked on quantitatively by deploying measuring instruments pre- and post-intervention. We then analysed the differences and

evaluated the success of the methodology in its objective of developing soft skills in professionals of the Information and Communication Technologies sector. This information was collected using self-applied questionnaires in Google Forms.

### 3.2.1 Ex Ante Measurement Instrument

Each participant answered an initial questionnaire prior to the start of the workshops using the Google Forms platform, which was designed to take no more than 10 minutes to complete. It should be noted that all participants enrolled in the workshops completed the questionnaire (n=49).

After a brief section of characterization questions, the instrument consisted of two sections. The first one contained six open questions, in which participants were asked about their strengths and weaknesses when working in teams; what contributions they considered that the incorporation of collaborative game dynamics in the workplace could provide; their evaluation of previous tabletop RPG play experiences regarding learning effectiveness and potential improvements, if applicable; and their expectations about the implementation of the workshops with BS&G.

The second section was designed to measure the skills of each participant in relation to the three proposed skills: empathy, leadership, and adaptability. The scales used for measuring these variables and verifying the results of the workshop were taken from the methods of the following studies:

- Task, Production, and Adaptability Scale (Madrid et al. 2018);
- Empathy, Work Performance Scales in Spanish (Madrid 2020);
- Self-efficacy for Entrepreneurial Leadership Scale (Moriano et al. 2012).

The resulting leadership scale has twelve items, the empathy scale has six, and the adaptability scale has nine. All items are Lickert scales, where the informant self-reports their agreement with a given statement on an ordinal scale, where the lowest value indicates lowest agreement, and the highest value indicates highest agreement. The items were scored between 1 and 5 for the first two scales, and between 1 and 7 for the last.

### 3.2.2 Ex Post Measurement Instrument

33 of the 49 initial participants completed a post-workshop questionnaire using the Google Forms platform. Just like the initial questionnaire, it was designed to take no more than ten minutes to complete and was similar in content.

After a section of characterization questions, the first part of the instrument consisted of three open-ended questions, in which participants were asked about what they learned from playing tabletop RPGs together with their co-workers; about the aspects they believe can still be improved in their teamwork; and about recommendations, suggestions and improvements for future workshops of this nature.

The second part of the questionnaire had the purpose of contrasting the responses of each participant in the previous questionnaire in the Empathy, Leadership, and Adaptability Scales, in order to account for changes or stabilities in these three dimensions rooted in teamwork, after having completed the workshops and participated in the experience. The Adaptability scale consists of the same nine questions of the previous questionnaire, the
Empathy Scale has the same six statements and finally, the Leadership Scale has the same twelve items.

Regarding the group conversation at the end of the workshops, we structured the conversation around three final questions, as a guideline to invite participants to reflect on the experience. As in the final questionnaire, they were first asked about the lessons they take away from the experience; secondly, about their opinion

regarding the incorporation of playful spaces or dynamics in the workplace; and finally, to complement the information gathered from the questionnaire, about the elements that they would improve in the workshops for future implementations.

## 3.3 Analysis Strategies

The technique used to analyze the information produced was a qualitative content analysis, specifically for the group conversations and reflections. The transcribed material was processed using the Atlas.ti v8 software.

The quantitative dimension of the research was carried out using the SPSS 23 software. We observed the behavior of each item in both questionnaires, as well as the dimensions that made up each scale, to establish whether there was a statistically significant change in them after the workshops.

For this analysis, we performed a comparison of related sample means. It was therefore necessary to establish the appropriate test for each case, examining whether the difference between the two results (pre- and post-) in each variable were normally distributed or not. The Kolmogorov-Smirnov test was used to establish the normality of this difference.

In the cases in which the condition of normal distribution was met, we used Student's t-test for two related samples. In those where normal distribution was not observed, we used the Wilcoxon test. In this way, we determined whether the change between the two moments was statistically significant, or, in other words, whether it was possible to establish with certainty that participation in the role-playing sessions was what produced the change.

Finally, to measure the specific effect in each category, Cohen's d test was used to obtain the magnitude of the change, which is calculated by dividing the difference between the Ex Ante mean ($M_1$) and the Ex Post mean ($M_2$) by the category's pooled standard deviation ($S_p$), as follows:

$$d = (M1 - M2) / Sp$$

This means that the direction of the effect is inverted: a positive d signals a decrease in the Ex Post measurement, and a negative d, an increment. The effect size was interpreted as follows:

**Table 2:** Cohen's d interpretation guide (Ventura-León 2018)

| Cohen's d | Interpretation |
|---|---|
| 0.20 | Small effect size |
| 0.60 | Medium effect size |
| 0.80 | Large effect size |

## 4. INTERVENTION DESIGN

The intervention approach was based on experiential learning, which focuses on the importance of the role played by direct experience in the educational process. It promotes the construction of knowledge through a process of reflection and "making sense" of experiences.

David Kolb (1984) focuses on exploring the cognitive processes associated with approaching and processing experiences, identifying and describing the different ways this is done. According to this author, for effective learning to take place, one should ideally go through a process that includes four stages:

1. An activity is performed, having a concrete experience.
2. The experience is reflected upon, establishing a connection between the activity and the results obtained (reflective observation stage).
3. From these reflections, conclusions or generalizations are articulated, understood as general principles referring to a set of circumstances broader than the particular experience (abstract conceptualization stage).
4. Finally, the conclusions obtained are tested in practice, using them as a guide to orient action in future situations (active experimentation stage).

The role-playing methodology proposed in this research consisted of an intervention over two working sessions carried out in two half-days, comprising an initial thirty-minute long introductory module, followed by three game modules of approximately ninety minutes each for the first session, and a game module of two hundred and forty minutes in duration for the second session, followed by a closing period of approximately thirty minutes.

We used the structure proposed by Kolb, building a narrative focusing on teamwork as a transversal aspect, and the concepts of empathy and conflict resolution, adaptability, and leadership in the central sessions.

The game used for this intervention was *Dungeons & Dragons* 5th Edition (Wizards of the Coast 2014) (*D&D* 5e hereafter), where players take the roles of heroes in a world based in the genre of high fantasy, where magic and mythological creatures are real, in a period similar to medieval times. This game was chosen due to a number of factors:

- *D&D* has a greater presence in academic research, more than any other published tabletop RPG.
- It is the most popular tabletop RPG system, both throughout the history of the hobby, and at the point this research was carried out, it was experiencing a new peak in popularity (Whitten 2019).
- This rise in popularity has coincided with renewed interest in *D&D* by popular media, shown in appearances in television series such as *Stranger Things*, *Riverdale* and *Gravity Falls*.
- *D&D* also allows for its game rules and systems to be used for the development of new products and projects, thanks to a document known as the Open Game Licence (OGL). This has fostered the production of large quantities of free-to-use material, which benefits our model by preventing the need of acquiring licensing rights for the content used.[2]
- The game system is relatively simple. Players declare they want to do an action, the narrator tells them what skill they must use and sets a difficulty, the player makes a roll with a 20-sided die and adds a number that represents their skill to the result. If they exceed the target number, they succeed. Else, they fail, and must adjust to the new scenario.

Play was carried out online on Roll20, a Virtual Tabletop (VTT) platform, accompanied by a group video call carried out on Zoom.

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[2] It bears mentioning that this research was designed and carried out years before the 2023 leak of a revised version of the OGL that could have potentially made these legal permissions stricter and less friendly to our research goals. While D&D's parent company has since pedalled back on these changes, it led to a decrease in relevance of the game in particular during the last few years.

**4.1 First Session**

**4.1.1 Opening Module: Diagnosis and Defining Expectations**

At the beginning of the first session, the following actions were taken:

1. The narrator introduced themselves to the group and introduced the game to be played. They then asked the team to introduce themselves and to tell the group something about themselves. As questions to motivate conversation, we asked:
   a. What do you imagine when we talk about role-playing games?
   b. What was the last game you played?
2. The narrator then asked the group what each participant's expectations were. Each participant was encouraged to write down their answer on a sheet of paper and then discuss it with the group.

**4.1.2 Game Module 1: Character Creation and Introduction to the System**

In the first game module, the following actions were performed:

1. The participants each received a character sheet and the narrator presented the initial premise of the story. The narrator explained that the participants would be creating their own character, that they would all begin playing as level one warriors, and that their characters would increase in power, or level up, as the sessions proceeded.
2. The following steps were followed during character creation:
   a. Depending on how they imagined their character, each participant had to define their base attributes (Strength, Dexterity, Constitution, Intelligence, Wisdom, Charisma) by assigning one of the following bonuses to each one: +3, +2, +2, +2, +1, 0, -1. Participants were told that a higher bonus meant the character was more proficient in that attribute. The participants then filled in the chosen bonuses in their character sheets, both in the attribute section and in the related skills.
   b. The participants then filled in the Hit Points (HP) of their characters, which were explained to be their health. Participants were told that, if their characters were hurt, they would lose HP, and if it ever reached zero, their characters would be knocked unconscious. The HP formula used was 10+ their Constitution bonus.
   c. Participants decided on a background for their characters, answering the following questions:
      i. Where was your character born?
      ii. Who is part of your character's family?
      iii. What did your character do before leaving on an adventure?
      iv. Did your character know any other of the characters in the group? Based on the answers to these questions, they selected a skill on their character sheet that represented something their character would know thanks to their life experiences. For each chosen skill, they added 2 to their current bonus, which showed they have a special handle on them.
   d. Participants were then prompted to think of three items their characters would have left home to go on an adventure. These items could not be weapons nor armor.
   e. The participants were told to verify their choices, and change up whatever they didn't feel sure about. After this, they were told that their decisions so far would be final, and from that point on, all choices would have to be taken as a group.

3. The narrator took out the adventure deck, a small deck of cards. Each card in the deck contained the description and game information for several different objects and abilities the participants' characters would be able to obtain during the adventure.
    a. First, the narrator drew as many random Armor cards as participants were present. Each Armor card contained a suit of armor with its respective Armor bonus, and participants were told that the higher the bonus, the harder it would be for opponents to harm them.
    b. Secondly, the narrator drew as many random Weapon cards as participants were present. Each Weapon card contained a weapon with both an Attack and Damage bonus. Participants were told that the higher these bonuses, the easier it would be for their characters to harm their opponents in combat, and the more damage they would do with a successful attack, respectively.
    c. The narrator then explained that each character had to receive one Armor and one Weapon, and that they had to choose who got what. This led participants to begin managing resources as a group.

### 4.1.3 Game Module 2: Empathy and Conflict Resolution

In the second game module, the following actions were carried out:

1. This module introduced the logic and rules of the role-playing game to the participants. The initial scenario was designed to provide participants a chance to test the mechanics of the game, and to explore the space of possibility within the tabletop RPG play experience. To achieve this, participants were presented with a simple challenge in order to familiarize them with the means and tools they would have at their disposal.
2. Once this initial challenge was solved, the narration of this module proceeded to the central problem: in this case, they were involved in a conflict between two villages, and had to decide which would be the best course of action to take in order to solve it.
3. Once the narration of this module was completed, the participants took a brief break. After this, the narrator asked them what were the main lessons they learned from the session so far, what their expectations for the future of the workshops were, and what they would improve in the following modules.

### 4.1.4 Game Module 3: Adaptability

In the third game module, the following actions were carried out:

1. At the start of the new module, the narrator explained to the participants that, just as we all grow and specialize, so did their characters. The narrator then presented them with a set of possible specialization paths called Classes, which would unlock better combat capabilities, better use of skills, and even magic powers, depending on the choice. The participants were prompted to choose a Class for their characters. This choice also aimed to encourage participants to think of their characters as a person separate and different to them, and as such, encouraging them to put themselves in the shoes of another "person". As part of this choice, the group had to decide which tactical roles each character would take within the team.
2. The plot of this module placed the participants' characters inside the labyrinth of a crazy magician, and challenged them to find a way out. The participants were constantly pressured to make decisions, using their skills in creative and innovative ways, thus encouraging them to work together. The narrator paid attention and took care to reward innovative decisions.

3. At the end of this module, the narrator invited participants to talk about the recently played session. The conversation paid special attention to the moments in which decision making was crucial, what the strategies for decision-making had been, what elements the participants considered, how they used the resources they had, and how they personally experienced the game module. Finally, the narrator asked for any other final reflections from the participants.

## 4.2 Second Session

### 4.2.1 Game Module 4: Leadership

In the fourth game module, the following actions were carried out:

1. The second session began with the narrator telling the participants that their characters were still learning, which meant that they would now gain access to new abilities. The new abilities were assigned depending on each characters' class progression.
    a. In this module, which mainly focused on leadership, resource management would be a relevant skill, so they did not only receive improvements or new abilities at the beginning of the module, but also would have to find them throughout the game world during the session. The players were not aware of this at the beginning of this stage.
2. Before the game began, players were given a moment to reconnect with the narrative by collaboratively summarizing what happened in the previous session. The narrator rewarded participants who provided important information for the team's mission during this phase with additional details that they could not have found out otherwise.
3. In this module, the characters were tasked with exploring the crazy magician's castle, where they were presented with challenges that required the specialized leadership of different characters with the help of the others.
4. The exploration of the castle eventually led to a final confrontation with the crazy magician. This encounter could be resolved in multiple different ways, and was one of the focal points of the final conversation.

### 4.2.2 Final Module: Closure and Expectation Assessment

Once the narration of the previous module was finished, the final discussion of the entire workshop took place. The narrator led the group of participants through the following conversation topics:

1. First, we talked about each participant's personal process and final takeaways throughout the entirety of the workshop. Following this, we asked the group to reflect about their collective experience.
2. We compared the initial expectations of each participant, and their perception of the resulting experience.
3. Finally, we asked the group about their opinion regarding the integration of games and play in the workplace.
4. We requested participants for their consent for this final conversation to be recorded, with the aim of analysing the results of the experience, what to improve in its design, and what potential they perceived in it.

## 5. RESULTS

The tabletop RPG-based workshops we conducted resulted in over 80 hours of play with ten different work teams, most of which belonged to the Information and Communication Technologies sector. After analysing the experience as a whole, we drew several insights regarding the methodology and its relationship with the development of key socio-emotional skills.

First, we will characterize the effects of tabletop RPG play on the development of the proposed skills, i.e., empathy, adaptability, and leadership. We observed that statistically significant changes -- or very close to significant -- were found in one item in the Task, Production, and Adaptability Scale (Madrid et al. 2018), and in two items and one entire dimension -- a set of survey items, which as a whole allow measuring more complex ideas -- within the Self-Efficacy for Entrepreneurial Leadership Scale (Moriano et al. 2012). The Empathy Scale (Madrid 2020) did not present any statistically significant changes, but a couple of items showed small changes that could indicate potential trends.

Regarding the Task, Production, and Adaptability Scale (Madrid et al. 2018), the item that had a statistically significant change was "Has ensured that his/her work activities are adequately completed," which corresponded with a decrease of a small effect size (Cohen's d = 0.44, Mean variation = -0.28) which could be generalized to less than 58% of the participants. The decreasing effect is interesting, since the question is phrased in a way that implies an exercise in identifying the completion of one's own tasks. This could indicate an increased awareness of work not done, and how it affects the team. As discussed earlier, tabletop RPG play encourages the division of work into differentiated roles, and as such, a change in this type of subject matter is coherent.

In the case of the Self-efficacy for Entrepreneurial Leadership Scale (Moriano et al. 2012), two notable results were obtained in the items:

- "Be flexible in the face of internal and external changes in the environment" (Cohen's d = 0.68, Mean variation = -0.13); and
- "Create the perception of early success as a project gains momentum" (Cohen's d = -1.91, Mean variation = 0.44).

The former showed a decrease, and the latter, an increase. As mentioned above, a decrease may indicate heightened visibility of the issue, which breaks the sense of security with respect to the problem and therefore opens space for improvement. On the other hand, the item on creating a perception of early success speaks about an increase in positive communication in the team, aiming to approach the construction of a project from the point of view of success.

Likewise, the dimension within the Self-efficacy for Entrepreneurial Leadership Scale (Moriano et al. 2012) that showed a significant increase (Cohen's d = -0.35, Mean variation = 0.23) was the Innovative Environment dimension, which includes items that relate to autonomy, feelings of safety to express ideas, and freedom. Despite the modest effect size, it is a relevant find, considering that the dimension relates to areas of action that are explicitly called upon and fostered in tabletop RPG play.

Finally, when analysing the Empathy Scale (Madrid 2020), it is noteworthy that the greatest fluctuations were observed in questions referring to imagining being someone else and putting oneself in their position, a practice that tabletop RPG play greatly emphasizes.

A secondary aim of this study was to evaluate the process of carrying out the tabletop RPG-based workshops. From the point of view of the design of the workshops and the logistic aspect of making them work, it is possible to affirm that there were no major inconveniences and they were carried out satisfactorily.

However, since this was an exploratory study based on a pilot experience of a hybrid analog-digital game, we can also raise a series of considerations to improve the methodology for future uses.

In practical terms, the issue of the length of the sessions and them fitting into the workload of the involved companies was revealed to be of utmost importance. In terms of total time, the workshops were planned to last eight hours, which were to be spread over two or four sessions, depending on the case. This meant that the participants effectively spent a full day of their working hours in the workshops. It is necessary to rethink the length of the sessions, making modifications according to the weekly availability of the teams, thus adapting them to their workload. This could be done either by increasing the number of sessions while shortening their duration, or by introducing time-saving changes such as the creation of characters based on pre-arranged types, or using audiovisual material for the induction to the role-playing game to allow more time to be devoted to the game itself.

A second aspect is the emphasis given to the ultimate purpose of the workshops and to the instances of reflection among participants for enhancing learning about teamwork. The information regarding the purpose of the tabletop RPG should be made clearer, and it should not bias the participants as to how they should behave during the game. Likewise, although there was a moment of group reflection at the end of the workshops, the teams suggested the need to include these spaces constantly across all game sessions, in order to develop a better and fuller analysis of the experience. The Panel of Experts also noted this issue, recommending that during the reflection sessions the participants could identify their personal skills together, and reflect on the importance of their role within the team.

Another important aspect to consider is that most of the participants had never played tabletop RPGs before, so the rules, rhythm, and dynamics of the game were sometimes complex to follow. This led some of them to feel confused on how to proceed, to struggle to identify what actions they could or could not perform, or to forget some important elements and definitions of their characters. Therefore, for future workshops, it is advisable to incorporate audiovisual material that shows demonstrations of tabletop RPG play, as well as written material within reach of each participant with explanations and important descriptions in case it is needed during the game.

Among other recommendations, it was suggested that the used digital tools could be more interactive, or that we could evaluate the use of better platforms altogether. It was also suggested that we introduce changes in the module scripts with the aim of increasing interactivity, such as facilitating crossover stories with other teams, including recorded sounds for the fantastic creatures met, and even thinking about other tabletop RPGs with different theming. On the other hand, the facilitating teams should give great importance to the previous motivation of the teams and the way in which they are invited to participate in tabletop RPG. Both are key to counteracting the possible resistance that a game-based training programme may generate in participants.

Regarding the valuation of spaces for recreation, play, and leisure in the workplace, we find that tabletop RPGs have the potential to strengthen teamwork, presenting them as a viable, attractive, and cost-effective alternative to traditional methodologies for workplace training. The collaborative nature and purpose of the game was highlighted both by the participant teams and by the Expert Panel. Both groups highly valued that the workshops gave them a chance to get to know their coworkers in a playful way and in a different environment, and to recognize each other's skills and find out how to complement them to work as a team and solve the challenges proposed by the game. To reflect this situation, in the reflection sessions and also in the conversation with the experts, we spoke of synergy, which, in addition to collaboration, implies coordination and complementarity.

The incentive to think creatively was also a highly valued aspect of the experience, both in the process of creating characters and throughout the game itself, since the participants found it necessary to come up with ingenious solutions to the problems and opponents they faced as a team. In this way, tabletop RPGs

allow working on inventiveness and creativity together with the ability to adapt to circumstances, through the search for new possibilities of action and alternative solutions.

Another potential of the methodology lies in the strengthening of workers' interpersonal relationships. Getting to know their colleagues better during the game and thinking together about creative solutions also leads to the development of trust and closeness within the team. For the same reasons, the experience also strengthened effective communication, thanks to it fostering empathy and respect when listening to each participant's ideas and input during decision-making. This aligns with participants' expectations of the activity, where one of the most important, besides having fun and having a good time, was to get to know their peers better and to strengthen their relationships as co-workers.

Before starting the workshops, participants mentioned improving their communication skills, their capacity for self-reliance and adaptability, cooperation and work climate, and strengthening leadership as their main challenges to overcome when developing teamwork as a skill. All these aspects emerged as lessons learned from the experience, although the statistical data were not conclusive. Once the workshops were over, they also pointed at leadership and communication as skills that they consider they should continue to work on. The games carried out during this research have shown that such competencies can continue to be promoted through tabletop RPG play, considering their benefits both at the individual and the collective level, which becomes more obvious when reminding that, for most participants, this was their first experience in tabletop RPG play.

## 6. CONCLUSIONS

In light of the results of the ex ante measurements and the responses obtained ex post, and also considering the experience as reported by the participant teams during the workshops, the importance given by the participants to getting to know their co-workers and connecting with them from the professional, the relational, and the emotional point of view, becomes clear.

Likewise, entertainment and relaxation, far from being a distraction from the teams' workload, is re-signified: fostering interpersonal closeness, communication, and establishing relationships of trust and respect in the workplace becomes a key element in individual and team performance. tabletop RPG play, then, becomes an attractive option by how it prioritizes these dimensions of teambuilding in organizations and companies.

At this stage of the analysis, it is possible to affirm that the implementation of tabletop RPG play sessions in the workplace stands out as a proposal for innovation at the professional, interpersonal, and organizational culture levels. It invites us to re-evaluate how work relations are constructed, and how collaboration is defined towards the achievement of an objective, highlighting the fact that a team is more than the spatial co-presence of people around a project.

A work team is characterized, among other things, by the active collaboration of all its members, as the skills of each individual are valued as complementary to each other in order to complete a task or face a challenge, and where the development of good internal communication is of vital importance. All this is put into practice when professionals participate in a tabletop RPG play experience, so it is promising to think about the results and potentialities that its incorporation into the work routine on a regular basis would bring. In addition, we observed improvements in the following elements: Responsibility and awareness about performing one's own tasks, putting oneself in the other's place when making criticisms, flexibility when changes occur at work, and maintaining optimism and a sense of success when starting a project. The initial hypotheses of the project, about positively affecting empathy, adaptability and leadership, are therefore confirmed.

Along with this, and standing out from the other results compared, in the Self-efficacy for Entrepreneurial Leadership Scale, an improvement was observed in a dimension understood as "Creating an innovative environment." This means that, thanks to participating in the tabletop RPG experience, participants are more likely to have attitudes that promote innovation within their workgroups. This point is an unexpected positive externality of the project, which should be analyzed in future in-depth studies as it can be a valuable contribution to encourage a culture of innovation in organizations.

As future avenues for further research, there are opportunities to deploy tabletop RPG-based interventions over several months with weekly workshops focused on specific skills and a shorter duration. Additionally, expanding the scope to other productive sectors beyond the Information and Communication Technologies sector could be a worthwhile effort.

We should emphasize that, as a playful and relaxed space, tabletop RPG play can help mitigate the effects of stress and exhaustion produced by intense workloads on workers, thus taking care of their mental and emotional health. It is vitally important to redefine the meaning of play in adult and working life, and to abandon the idea that it is unproductive and exclusive to children. Fun and recreation are not incompatible with the world of labor; performance and learning become more effective when methodologies such as this one are integrated, whose focus is on self-observation as a team, synergy among peers and play as the driving force of fundamental skills for teamwork.

**ORIGINAL ARTICLE REFERENCE**

García-Soriano, Felipe, Francisca Faret Moreno, and Daniel Gonzalez Cohens. 2023. "Juegos de Rol para el trabajo en equipo: Pilotaje de una metodología de desarrollo de habilidades socioemocionales." *Journal of Roleplaying Studies and STEAM* 2 (1): Article 3. Link here.

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**Felipe García-Soriano** is a sociologist from the University of Chile and a PhD candidate in Economy, Business and Society at the University of Alicante. He works primarily as a consultant and designer of non-formal learning experiences, with a focus on organizational development, civic engagement, and systems thinking through tabletop role-playing games (TTRPGs) and participatory methodologies.

**Francisca Faret Moreno** is a sociologist from the University of Chile, with diplomas in Gender Theories, Development and Public Policies, and in Quantitative and Qualitative Methodologies for Design and Social Research. She is currently pursuing a Master's in Gender and Cultural Studies with a mention in Social Sciences at the University of Chile, and works as a methodological consultant and research assistant in the field of gender and higher education in Chile.

**Daniel González Cohens** is a Master of Sciences in Game Studies from Tampere University, project coordinator, and social science researcher. He has over seven years of experience in project proposal design within public regulatory frameworks, methodological design, and project management and coordination. As a researcher, he is interested in learning about play as a collective social practice, shared imagination, and particularly tabletop role-playing games. He specializes in problem-solving, creativity, organizational skills, and willingness to work in multi- and interdisciplinary teams.