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ADVENTURERS AND ALGORITHMS: AI AND THE EVOLUTION OF TTRPG GAMEPLAY

Abstract

Modern tabletop role-playing games (TTRPGs) have received increasing attention in library and educational contexts due to their ability to serve as an alternative experiential learning opportunity. However, common TTRPG safety frameworks lack consideration for the adoption and impact of AI tools. To address this gap, this study employs a qualitative approach to explore how AI tools are used in TTRPGs and players' concerns related to fairness, bias, and safety. The findings aim to aid the development of more comprehensive safety frameworks for AI-integrated TTRPG experiences.

Introduction

Since the 1970s, tabletop role-playing games (TTRPGs) have had an immense cultural impact due to their ability to facilitate a shared story-telling experience between players (Cover, 2010; Ewalt, 2013; Riggs, 2022). Due to the strong player-focus, modern TTRPGs have evolved substantially to align with the cultural contexts of the player base. This evolution has resulted in games embracing diverse voices, perspectives and experiences. Additionally, games are now utilizing mechanisms to ensure player safety during emotionally stressful gameplay scenarios such as situational safety cards, consent forms, and trigger warnings (Reynolds & Germain, 2019; Stavropoulos, n.d.; Valoroza-Jones, 2021). Alongside these cultural evolutions, TTRPGs are now integrating with AI models such as ChatGPT and Dall-E. Due to the increased efficacy of these models, players can leverage ChatGPT to inspire their storytelling and use Dall-E to create images to bring their world to life (Callison-Burch et al., 2022; Rameshkumar & Bailey, 2020; Triyason, 2023; Zhu et al., 2023). While using these tools provides efficiencies and enhancements to gameplay, it is critical to understand the ethical implications of their adoption.

The objectives of this study are 1) to synthesize the experiences and perspectives of game masters (GMs) and players who have used AI models as a tool for TTRPG worldbuilding, and 2) to explore GMs' and players' views on AI ethics in TTRPGs, particularly regarding fairness, bias, and safety. These three aspects were chosen due to their strong resonance with the TTRPG experience, such that they can be readily perceived and experienced by players. Utilizing a qualitative approach, this study will address two research questions:

- **RQ1:** For GMs who have used AI for TTRPG sessions, what are their experiences and players' perspectives on AI as a tool for assisting creative worldbuilding?
- **RQ2:** For GMs and players who have used AI for TTRPG sessions, what are their perspectives on ethics particularly regarding fairness, bias and safety?

The outcomes of this study will impact the existing safety tools in TTRPGs by introducing a new subset of techniques to mitigate the perceived risks associated with the introduction of generative AI models in games. The update of safety frameworks is critical due to the adoption of TTRPG by education and library programs as an experiential learning opportunity to enhance problem-solving and literacy skills (Carter, 2011; Glazer & Hergenrader, 2014; Veldthuis et al., 2022).

Literature Review

Tabletop Games and Education

TTRPGs in education and library programs have emerged to provide alternative learning opportunities to students and community members. Librarians were early adopters as they saw TTRPGs as a “gateway into reading programs and book discussions” (Ewalt, 2013, p. 126). In post-secondary education, Glazer and Hergenrader (2014) proposed the inclusion of TTRPGs as an alternative approach to teaching literature and creative writing. The authors stated that TTRPGs “naturally solicit student participation and deeper learning [and] allows the students to become immersed in writing practices” (p. 103). Veldthuis et al. (2022) reported a similar experience after integrating a TTRPG module into a computer science program to teach creative writing, storytelling, and character development. The incorporation of TTRPGs also fostered soft skills, often underrepresented in hard science curricula. As Wright, Weissglass, and Casey (2020) reported, TTRPGs can “function as an engaging, interactive ‘moral training ground’” (p. 99).

AI Ethics

This study draws on the FAST model (Leslie, 2019) to assess the ethical nature of AI tools. FAST serves as an acronym for the five pillars of ethical design; fairness, accountability, safety, sustainability, and transparency. This study focuses specifically on fairness and safety, the most relevant features for end users in informal settings. Bias is examined as a subcomponent of fairness. The following subsections define and illustrate each concept.

Fairness

Leslie (2019) established AI fairness as a feature built upon the principle of discriminatory non-harm such that “behaviors of models do not generate discriminatory or inequitable impacts on affected individuals and communities” (p. 14). While the FAST framework positions fairness to encompass the entire lifecycle of an AI model, this study uses *fairness* to encapsulate outcomes and implementations whereas *bias* encapsulates data and design. This allows a more granular analysis of the lifecycle and frames fairness as a tangible, human-centered aspect of ethics, a common approach in modern ethical literature (Modi, 2023). The concept of fairness may manifest when a player chooses to avoid using a text-to-image model upon discovering that its training process infringed on the copyrights held by artists.

Bias

As defined by Modi (2023), “bias is the unjustified and systematic favouritism or discrimination of certain people or groups that results in unfair results” (para. 7). Models may unintentionally

inherit biases through poor decision-making and data collection during development. Within the concept of TTRPGs, bias may manifest as the misrepresentation of diverse groups and voices within the game. For example, an unbiased model would strive to incorporate a spectrum of gender and sexual identities versus operating within a cis heteronormative binary.

Safety

Leslie (2019) defined safe AI models as those “that accurately and dependably operate in accordance with its designers’ expectations” (p. 30). A lack of concern for safety in the design of AI systems can result in harmful outcomes and a degradation of trust. For example, if a large language model (LLM) generates a scenario with triggering themes, it compromises player safety and erodes the GM’s trust in the tool.

The Intersection of AI and Tabletop Games

Contemporary literature demonstrates a growing interest in the development of AI systems to streamline gameplay. Triyason (2023) presented a feasibility study on the application of ChatGPT as a co-GMing tool. ChatGPT was evaluated during game sessions across four criteria (narrative coherence, narrative immersion, play engagement, and adaptability) on a 5-point Likert scale. The model scored above 4 points for both narrative coherence and adaptability, demonstrating promising results for further application.

Other studies have explored the creation of custom models trained on gameplay data to handle TTRPG specific tasks. Using a dataset of transcriptions from the live-play show *Critical Role*, Rameshkumar and Bailey (2020) created a custom LLM which summarizes gameplay. This approach has the potential to assist GMs with session planning and narrative continuity. Callison-Burch et al. (2022) and Zhu et al. (2023) used domain-specific models to create tools to assist GMs and players with combat encounters. This type of co-GMing could reduce the cognitive load experienced by GMs when planning and executing large battles.

While studies show that TTRPGs offer valuable educational benefits in creative writing, literacy, and problem-solving, and there is growing interest in AI applications within gameplay, little attention has been given to the ethical implications of AI in this context. This study addresses this gap by exploring the experiences of TTRPG players and GMs using AI tools, aiming to enhance safety frameworks with guidelines for ethical AI implementation, focusing on fairness, bias, and safety.

Methods

This study leverages a qualitative analysis of posts and comments collected from Reddit, a social media platform which leverages topical subcommunities. Motivated by the work of Jamnik and Lane (2017), Reddit was chosen for its ability to capture diverse voices through high-quality and easily accessible data. Post selection involved three rounds of data collection and refinement: community identification, post identification, and post metadata qualification. In the community

identification phase, subreddits which represented TTRPG communities (e.g., r/rpg) were identified (n=8). Each qualified community was queried using the term "AI" to identify relevant posts (e.g., “*AI for making a world is crazy*”). The metadata for the qualified posts (n=69) was harvested, and thresholds were established based on the following participation metrics: reply concentration ratio (>95%) and discussion ratio (>70%). These participation metrics ensure that replies on a given post occur promptly and generate meaningful conversations amongst subreddit members.

As summarized in Table 1, the application of metadata thresholds resulted in the identification of target posts (n=5) consisting of 326 comments for analysis. Posts were collected using the Reddit API, with analysis samples structured to include a parent comment and its hierarchical thread of replies.

Table 1. Summary of qualified posts identified for analysis.

Post Title	Subreddit	Comment Count	Reply Concentration Ratio	Discussion Score Ratio
Is it ethical to generate setting lore with AI, or is that not a good thing?	r/rpg	107	100%	73.4%
Letting AI Run a Town	r/rpg	75	100%	79.5%
The difference between random tables and LLM	r/rpg	69	100%	73.2%
Chat GPT as a DM tool	r/DungeonMasters	42	95.2%	78.8%
AI for making a world is crazy.	r/DnD	33	100%	82.4%

Table 2 summarizes the code families used for analysis, derived from the previously presented literature review. Each code family contains three child codes representing varying degrees of sentiment (i.e., positive, negative, and neutral). The codebook's feasibility was evaluated through an intercoder reliability test on 10% of the qualified samples, resulting in 77% percentage agreement, indicating high reliability (Ellis, 1994) and supporting the validity of the codebook. The remaining samples were equally distributed between the authors and coded in Atlas.ti.

Table 2. Code families leveraged for analysis.

Code Family	Definition
Bias	A code for comments addressing bias in AI tools. These comments may highlight aspects of design, development, or deployment, including mentions of biased data, algorithmic bias, or systemic design features.

Fairness	A code for comments addressing fairness in AI tools. These comments may include observations on user-centered aspects, such as intellectual property (IP), equitable treatment, and discriminatory non-harm.
Other	A code for comments addressing emergent ethical factors of AI outside of fairness, bias, and safety.
Safety	A code for comments addressing safety in AI tools. These comments may reflect on aspects of player needs, such as mental health and triggering topics.
Tools	A code for comments addressing experiences related to the use of AI tools.

Findings and Discussion

Upon completion of coding, the identified quotes were exported for a card sorting activity to reveal emergent themes within the code families. A prominent and balanced discussion was identified across posts on the use of AI as a GM tool to alleviate cognitive load and assist in creative aspects such as worldbuilding. Ethical concerns of fairness were focused on intellectual property rights while concerns of bias manifested around representations of diversity. The disclosure of AI use was identified as the primary safety consideration. Environmental sustainability also surfaced as a significant ethical theme. Additionally, a shift in community guidelines on discussing AI was identified. The following subsections discuss each of these themes in further detail.

AI as a GM Assistant

Mearls, Crawford, Perkins, et al. (2014) outline the expectations of a GM across three distinct sub-roles; the architect, the storyteller and the actor. These roles are fluid and frequently overlap, with GMs shifting between them based on the needs of the game. Managing this interplay introduces challenges that necessitate the use of external tools to mitigate the cognitive, temporal, and financial burdens. As shown in the Reddit posts, GMs have demonstrated success in integrating AI into their existing toolkit to reduce toil (“I use AI to generate all of the stuff I don’t want to labor over. I’m too busy to spend hours building the minutiae of a world.”). Additionally, GMs report having positive experiences using AI to compensate for a requisite skill such as worldbuilding (“Not everyone is a writer or creative enough to describe a particular cave, forest, city or whatever”).

While the observed benefits and efficiencies are promising, the adoption of AI for TTRPGs is not without opposition within the community. The perceived optimization of the GM's role through AI has led to sentiments of dehumanization within gameplay (“You’re taking a truly limitless and creative hobby for human expression and trying to optimize the humanity out of it because you can’t picture a forest in your head.”). Furthermore, the quality of generated text from LLMs has been scrutinized leading some to position model output as vapid (“It physically hurts to see human beings rally around this and praise it for being formatted in a pretty way when there’s nothing actually there.”).

To balance these competing viewpoints, it is essential to ground AI as an optional tool for GMs (“It is just a tool to help make a GM’s life easier”). The use of AI is not requisite for the creation of a compelling game, nor does the use of AI fundamentally invalidate the gameplay experience.

Ethical Concerns

Fairness

The ethical concerns for fairness are concentrated around the concept of intellectual property rights. The perspectives of the community represent a spectrum of acceptance, ranging from minimal concern for infringement to outright rejection of any AI model trained on copyrighted material without explicit consent from the creators. Players and GMs who demonstrate minimal concern with the use of AI ascribe to the principal of Fair Use (“Fair Use lets us take content and transform it legally, creating something new.”), whereas those that outright reject its use highlight its impact on creative jobs (“...creative types that feel threatened by AI taking creative jobs. Which, to be fair, is absolutely a thing that is/will be happening.”). To remove ambiguity surrounding AI use, it is vital for companies providing AI services to disclose the sources of their training data, and for governments to establish modernized legislation that addresses the complexities of this technology.

Bias

Modern TTRPGs have evolved to embrace the diverse voices of its player base. However, there is concern within the community that the use of AI may lead to the erasure of diverse perspectives, reinforcing and perpetuating stereotypical characterizations of cultures (“I added a Kuei Jin character (a somewhat problematic Asian vampire from older editions) thinking it'll mix it up. Nope, leaned into full stereotyping again. ... "Diego 'Rattlesnake' Veracruz" from Hong Kong had a zen garden in his apartment and a magic katana and operated a sex trade out of a massage parlor.”). Highly stereotypical representations of culture generated by AI tools have the propensity to undo the progress the community has made toward equitable representation and could trigger a resurgence of harmful biases. To mitigate this, players and GMs should work directly with communities which they wish to include to ensure appropriate representation and not solely rely on the output of AI tools.

Safety

The concept of safety with respect to AI manifested as a concern for disclosure around the use of AI (“I think the key element is: are your players okay with you using AI?”). Players reported that discovering a GM used AI without disclosure led to feelings of disappointment and disengagement (“Finding out my GM had AI generated most of the session of her first homebrew oneshot was so disappointing.”). To address this issue, it is critical for existing safety mechanics in TTRPGs to update and include consideration for the use of AI. Mechanics such as consent surveys allow GMs and players to establish what triggering themes are permissible at the

table (e.g., body horror). The inclusion of AI as part of these surveys would allow for an upfront discussion around the use of AI by all game participants.

Sustainability

In addition to ethical considerations of fairness, bias, and safety, an emergent concern regarding environmental sustainability with respect to the use of AI has also been identified. Community members demonstrated a deep understanding of the environmental impact of AI, leading them to question whether the use of AI for TTRPGs is truly justified, especially when the benefits may be perceived as marginal or non-essential (“The difference is I don’t offer a paid service that scrapes hundreds of thousands of data sets online and then use up tons of wattage hours of electricity so that someone can generate a list of elvish names.”). To further understand the environmental impact of AI tool usage, it is critical for companies to disclose their resource usage and for governmental oversight to be established specifically for this concern.

Community Silencing

During the data collection phase of this study, an absence of recent AI-related posts was identified on the r/DnD subreddit, suggesting the presence of strict moderation practices regarding AI discussions. Upon reviewing the community guidelines, rule five explicitly bans conversations regarding AI stating, “We do not allow AI generated content or AI tools to be posted to the sub[reddit]”. Due to the controversial nature of AI usage and the polarity of community sentiment, the ban appears to reflect an effort to preserve comradery and prevent the emergence of disruptive debates. However, restricting conversation around the use of AI will lead to inconsistencies with respect to its application and hinder the organic and community-based construction of best practices. To address this issue, it is vital for TTRPG game publishers to address the use of AI in game materials and safety mechanics.

Conclusion

With growing interest in using TTRPGs as experiential learning tools in libraries and educational programs, the outcomes of this study will support the update of safety frameworks to address AI integration. Addressing the stated research questions through qualitative analysis, this study successfully explores AI use cases in TTRPGs, and investigates GMs’ and players’ ethical perspectives regarding fairness, bias and safety in gameplay. Furthermore, the findings of this study can serve as a foundation for future research. The identification of AI discussion silencing within TTRPG subreddits suggests the need for additional mediated data collection through interviews or focus groups. The identified emergent themes from this study can serve as groundwork for interview instruments, which will allow in-depth understanding of the three ethical aspects concerning AI usage in TTRPG gameplay.

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