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INDIE GAMES: CONCEPTS AND CHALLENGES

INDIE GAMES: CONCEITOS E DESAFIOS

JUEGOS INDIE: CONCEPTOS Y DESAFÍOS

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ABSTRACT

This paper brings the definition of the so-called indie games, digital games produced independently by small teams, often unrelated to big studios or publishers. The indie games stand in opposition to productions known as triple-A, which bring on themselves high quality standards and massive investments in development and marketing. Therefore, we intend to understand the challenges in the production of independent games, as well as discuss how internet and the Steam platform have been acting as important facilitators in development and publication of these games.

Keywords: indie games; independent games; digital games development.

RESUMO

Este trabalho elucida o que são os chamados *indie* games, jogos digitais produzidos de maneira independente por pequenas equipes, geralmente desvinculadas de estúdios e/ou publicadoras de grande porte. Os jogos indies contrapõem-se às obras conhecidas como *triple-A*, isto é, detentoras de alto padrão de qualidade e provindas de vultosos investimentos em desenvolvimento e marketing. Busca-se compreender os desafios inerentes à produção de games independentes, bem como abordar a internet e a plataforma Steam como importantes facilitadoras no desenvolvimento e publicação destes jogos.

Palavras-chave: jogos *indies;* jogos independentes; desenvolvimento de jogos digitais.

RESUMEN

Este trabajo aclara qué son los llamados indie games, juegos digitales producidos de forma independiente por pequeños equipos, generalmente ajenos a los grandes estudios y/o editoriales. Los juegos indie se oponen a las obras conocidas como triple-A, que tienen un alto estándar de calidad y provienen de grandes inversiones en desarrollo y marketing. Se busca comprender los desafíos inherentes a la producción de juegos independientes, así como abordar internet y la plataforma Steam como facilitadores importantes en el desarrollo y publicación de estos juegos.

Palabras Clave: juegos indies; juegos independientes; desarrollo de juegos digitales.

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1. INTRODUCTION

What is an independent digital game? The so-called indie games – contraction of "independent games" – are digital playful productions unrelated to big studios and/or larger publishers. They are produced by small teams with reduced resources, or even by a single game designer. Indie games bring innovations to the methodology of digital game production, acting as avant-garde art products. The creation and distribution of an indie game is, from the beginning, marked by challenges and innovations.

Initially, independent games were created by one or two programmers and distributed in local stores or by mail order, in a quasi-guerrilla fashion. In the 1990s, there was the shareware model, with games distributed via floppy disks or CD-ROM. Currently, games inhabit the data clouds and are available globally on digital stores such as Steam and platforms such as Xbox and PlayStation Store. These are the so-called digital games, in which the interactivity of traditional games is performed through technology, especially electronics.

Digital games include recreational objects whose technologies are "based on microelectronics, which include games for computers, consoles, arcades, smartphones, tablets and any other equipment that may come into existence" (ARRUDA, 2000, p.3). From this perspective, the term gives greater scope to the object, as it includes video productions (video games) and formats for computer and mobile devices. For game designer Phil Fish, known for his indie work FEZ (Polytron, 2012), "games are the ultimate art form, (...) the ultimate medium. It is the sum of all expressive media of history in interactive form" (INDIE GAME..., 2012).

Arruda (2000) points out that this market has expanded substantially in recent years and has generated great demand for work for specialists in different fields of the process of building a digital game. Chandler (2012) cites as required areas those related to Production, Art, Engineering, Design, Marketing, Public Relations, among others. The execution of the project requires care with methodology and mastery of elements such as: script and narrative, character archetypes, gameplay, definition of space and time of the game, sound design, etc. (ARRUDA, 2000).

As a cultural item, games are subject to the artistic production scenario of their time. Contraction of the adjective independent, the term *indie* comes from English and translates as "independent", that is, the art whose production is not linked to large capital investors. It is important to emphasize that independent productions are common to the entire area of communication and artistic expression, as can be seen in the excerpt:

> Terms such as independent, alternative, marginal, runt, underground have been used for some time to identify similar positions in literature and poetry, in cinema and video, in the press,

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> in theater. (...), each of these terms ends up fulfilling with some success the role of identifying a certain type of artistic production. (VAZ, 1988, p.11).

Cobbett (2017) and Parker (2013) point out that, in the early days of the birth of game production, almost all games were indies, in the sense that there was no industry or economic framework on which to base the practice (PARKER, 2013, p. 3). The concept of what is an indie game gained definition between the 1990s and 2000s, because of the exponential growth of the mainstream games industry and the rise of digital distribution, as argued by Parker (2013, p.3). The boundaries of conceptualization of what an indie game is are still not solid. For Cobbett (2017), one can think of three general scenarios: 1. the aesthetics of a game created by a single person; 2. the commercial aspect, of working without a publisher, and 3. the content, in which the indie game stands out for not doing what bigger companies do.

Due to its authorial aspect, the development of indie games has influenced the electronic game scene since the 1980s (Nascimento et al., 2014, p.153). However, his daring and avant-garde productions did not always end up attracting the due recognition of major publishers and the public. Currently, however, initiatives from companies such as Microsoft have sought to value the independent games scene and take advantage of solutions and innovations found in these works (LEMES, 2009, p.27).

The explanation of digital game concepts by Arruda (2000) was consulted for the methodological development of this work, as well as: Chandler's (2012) description of the game development process; the article by Nascimento et al. (2014) on general aspects of indie games; the two thesis defended by Lemes (2009), specifically on independent games and by game designer Thais Weiller (2012), whose professional production is prominent in the national indie context. Testimonials from game designers were collected in the North American documentary Indie Game: The Movie (2012). Within the scope of the conferences, publications from the Brazilian Symposium on Digital Games (SBGames), a Brazilian academic event linked to the area of digital games, were consulted as well.

2. INDIE GAMES *VERSUS* TRIPLE A

Indie games are opposed to productions called triple A, or AAA, by the games industry. Triple A games come from major studios and publishers and get huge investments in development and marketing. For game designer Jonathan Blow, these games are highly polished products that cater to the widest possible audience (INDIE GAME..., 2012).

Examples of productions of this type are the God of War franchises and series (Sony Comp. Entertainment and Capcom), Far Cry and Assassin's Creed (Ubisoft), The Sims (Electronic Arts),

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Mass Effect (Electronic Arts and Microsoft) and Mario (Nintendo). Given the large investment of capital in the production and distribution of these products with commercial verve and aimed at the general public, it is possible to establish a parallel between triple A games with Hollywood blockbusters, coming from American cinema.

Indie games, on the other hand, are usually produced by a small team or even a single game designer. According to the designers themselves, the biggest motivation to face the long process of developing a game is the passion for the craft. This definition is confirmed by journalist Chris Dalen, in Indie Game: The Movie: "Indie games are games where a small group or one person has worked for their own vision. Something they wanted to do, program and finish." Authorial expression is the keynote of these digital games, which revolutionize, experiment, and innovate in the way of expressing information and interactions.

The development of independent digital games is generally unrelated to major studios and publishers, such as Ubisoft, Capcom, Electronic Arts, among others. It is possible to compare this type of digital game production with underground B-cinema films, separated from large producers and distributors, or even authorial music production, independent of labels and record companies.

As examples of indie digital games, we mention Braid (Number None, 2008), Super Meat Boy (Team Meat, 2008), Minecraft (Mojang Specific., 2009), Limbo (Playdead, 2010), Bastion (Supergiant Games, 2011) and FEZ (Polytron Corp., 2012). In Brazilian productions, we cite the games Knights of Pen and Paper (Behold Studios, 2013), Dungeonland (Critical Studio, 2013), and Mr. Bree+ (TawStudio Entertainment, 2013) – it is important to note that these three works are available on the Steam platform, which will be described later.

Figures 1 to 3 – Promotional images of the games Braid, Super Meat Boy, and FEZ, mentioned in Indie Game: The Movie.

Source: <store.steampowered.com/app/207080/Indie_Game_The_Movie/>.

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The classification as an indie game, however, can be somewhat hazy if we consider companies like Double Fine Productions, by Tim Schafer, known for works such as Brütal Legend (2009) and Broken Age (2012). Its games mix a complex 3D graphic finish, common to triple A works, with authorial scripts and narratives, in addition to a good monetary disposition coming from crowdfunding platforms, such as Kickstarter. In the case of Double Fine, which is both a studio and a publisher, there is significantly more capital available than is typical for independent studios due to the prior funding of the proposed game by interested gamers.

2. INNOVATIONS AND CHALLENGES

What is the methodological way of producing a digital game? According to Chandler (2012, p.3), the production of a game starts with the definition of the game concept until the publication of the final and polished version of the programming code. In this complex, multi-step process, a smaller team means significantly greater time constraints and interpersonal attrition during product development.

As is well known, independent studios do not always obtain investors or technical resources to finance the production of a triple A-quality video game from start to finish. For reasons like this, argues Nascimento et al. (2014, p.156) that independent developers innovate in other aspects, such as mechanics, gameplay, art, and narrative, to generate an experience – and a game design – that is more particular and personal. It is a way of avoiding the repetitive formulas of the established series of triple A productions.

Independent games were based on the business model known as shareware, that is, the player could test the work for a certain period and, after that, be compelled to finance the full version of the software. For Nascimento et al. (2014, p.154), this was one of the most used models for broadcasting independent games in the past. However, in this framework, the domain of publications remained in the hands of gaming industry titans. This context was only changed after the internet distribution of the games' digital versions. For developer Ron Carmel, in Indie Game: The Movie, “What made all of this [independent game publishing] possible was the emergence of digital distribution. Retailers used to have a lot of power over every game making company because that was the only way to sell them.”

In another way, the detachment of studios and publishers focused on commercial production has granted independent developers’ creative freedom. For example, a screenwriter “can talk about what haunts his soul without running the risk of hurting susceptibilities or being too boring for some” (NASCIMENTO et al., 2014, p.159). The game designer can create experimental visuals to support the personal narrative. In the dark and solitary game Limbo (figure 4), for example, one can see the

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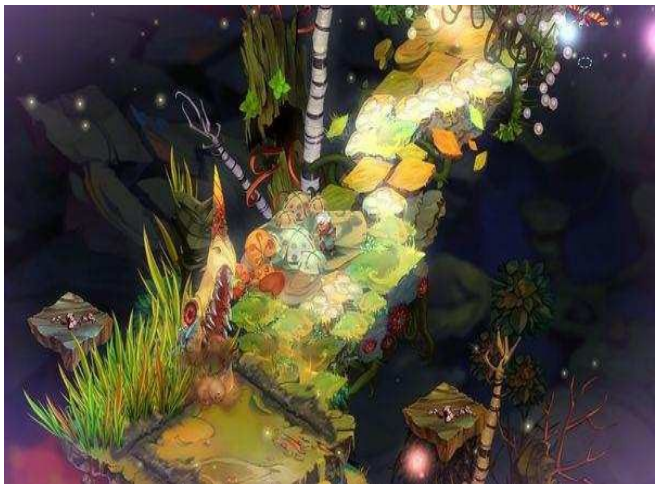
influence of German expressionism, which was originated in the 1920s. The simplified design and monochromatic palette of its graphics dialogue with the minimalist sound design, which privileges intervals and silences. The graphics feature grain texture, just like movies of the genre.

Figure 4 – Scene from the game Limbo (2010)

Source: <store.steampowered.com/app/48000/>.

The games Braid and Bastion, on the other hand, invest in manually colored digital graphics that reference painting (figures 5 and 6). The soundtrack and sound design of Braid reference classical instrumentals, whereas Bastion employs rock and electronic music.

Figures 5 and 6 – Scenes from the games Bastion (2011) and Braid (2008).



Source: <store.steampowered.com/app/107100/> & <store.steampowered.com/app/26800/>.

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Already, established companies are assisting indie development. Nintendo, for example, has reserved part of the transmissions of its news channel, Nintendo Direct, for advertisements for independent games (NASCIMENTO et al., 2014, p.160). In the meantime, Microsoft has invested in developers tools so that they can create their own games and, potentially, develop new success products (LEMES, 2009, p.27).

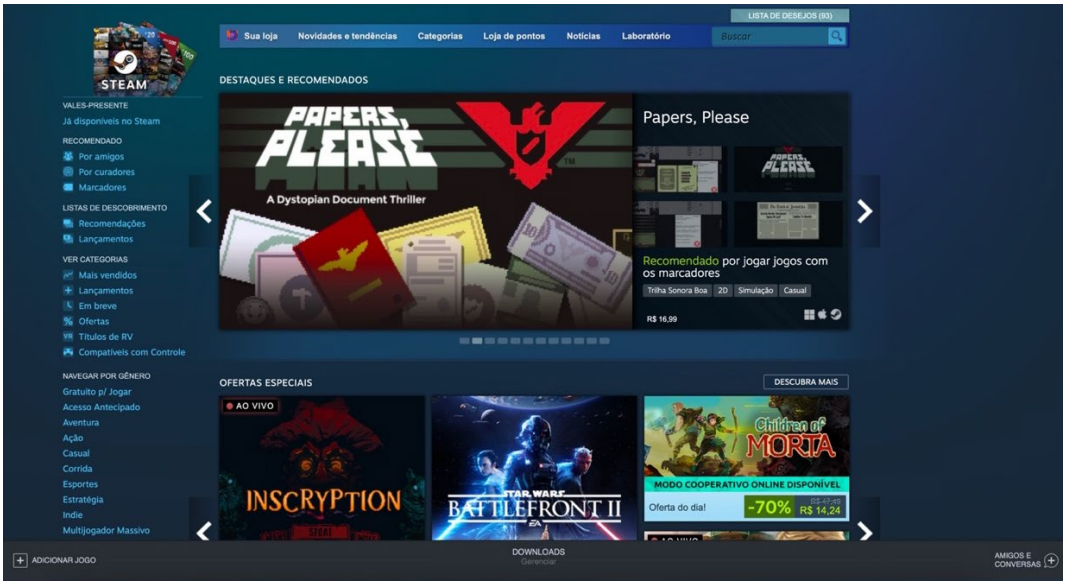
Nascimento et al. (2014, p.158) also note that the Internet has played a crucial role in easing the difficulties of independent production by transmitting a variety of materials that aid in the production and publication of these works.

4. THE STEAM PLATFORM: an important catalyst

The Steam has played an important role as a catalyst and facilitator in the digital games' scene, independent or not. The Steam platform consists of a computer program developed by Valve Corporation, available in a web version, originally created as an attempt to combat piracy. Currently, game licenses and DLCs are sold by its system. For Ballista (2013, p.2), Steam can be considered a publisher. Rudders et. al (2012, p.4) emphasize the focus only on selling games and derivatives of this program and Querette et. al (2012, p.17), claim that the platform connects producers to customers more directly. Given its significance to the independent gaming community, Steam is mentioned early on in Indie Game: The Movie.

In figure 7, it is possible to see the homepage of the Steam virtual store featuring the game Papers, Please (2013), an independent production by game designer Lucas Pope.

Figure 7 – Steam platform screenshot.



Source: <http://store.steampowered.com/>.

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For developer Ron Carmel (INDIE GAME..., 2012), the digital game distribution platform created by Valve changed the scenario dominated by large merchants and retailers. Other platforms like the X-Box Live Arcade, PlayStation Store, and Nintendo eShop followed Steam's lead. This freedom of publication on multiple platforms, according to Nascimento et al. (2014, p.153), allows independent games to gain strength and influence the game industry with their aesthetic, mechanical, or narrative innovations.

In 2012, Valve launched Steam Greenlight (figure 8), an internal Steam platform for developers to submit materials and sketches of their games for the gamer community to vote. After a substantial amount of upvotes, the game can be officially published on the Steam platform and made available for sale worldwide.

Figure 8 – Steam Greenlight screenshot from 2014.

Source: <http://steamcommunity.com/greenlight>.

On June 6, 2017, Greenlight stopped accepting new submissions and polls. What may appear to be a blow to independent productions is actually a boon: games can now be accessed through early access without having to wait for public voting. In figure 9, the Steam store page dedicated to indie productions:

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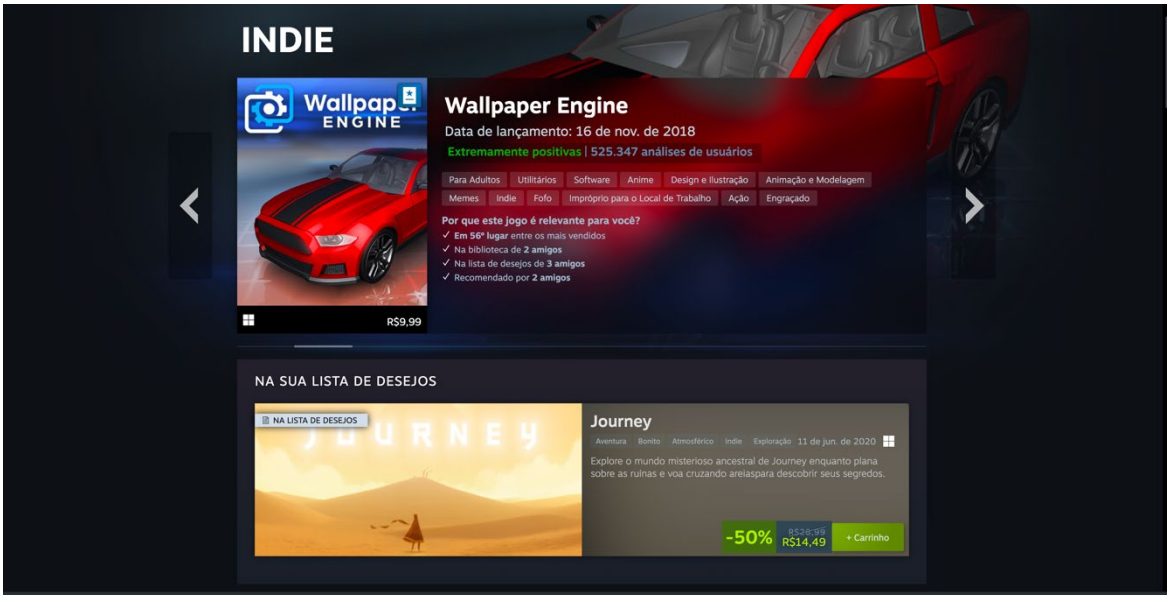
Figure 9 – Steam store page dedicated to the indie genre.



Source: <https://store.steampowered.com/tags/pt-br/Indie/>.

5. IMPLICATIONS OF ARTIFICIAL INTELLIGENCE

Although the focus of this article is directed towards a period of indie game development prior to the widespread adoption of Artificial Intelligence (AI) technologies, it is essential to address the implications of this resource in the contemporary context of independent games. This section aims to concisely discuss the main positive and negative aspects associated with the use of AI in the development of independent digital games.

The use of AI in digital game development has become increasingly accessible through tools such as game engines[1] and open-source platforms. Game engines play a crucial role in optimizing the development process by saving time and resources for development teams. They streamline fundamental stages such as graphical rendering, physical simulation, gameplay mechanics development, procedural generation of elements (such as maps, textures, and environments), and audio management, including sound, soundtrack, and sound effect manipulation. Among the most commonly used engines are Unity, widely adopted by independent developers; Unreal Engine, recognized for its high-quality graphics; and Godot, an open-source engine notable for its flexibility and accessibility.

Among the positive aspects of adopting AI in the development of independent digital games,

[1] Engines, also known as "game engines," are software or frameworks that provide tools and technologies for the development of digital games, eliminating the need for developers to build complex systems from scratch. These engines often include pre-developed functionalities designed to support various stages of game creation, rendering, and interaction of game elements.

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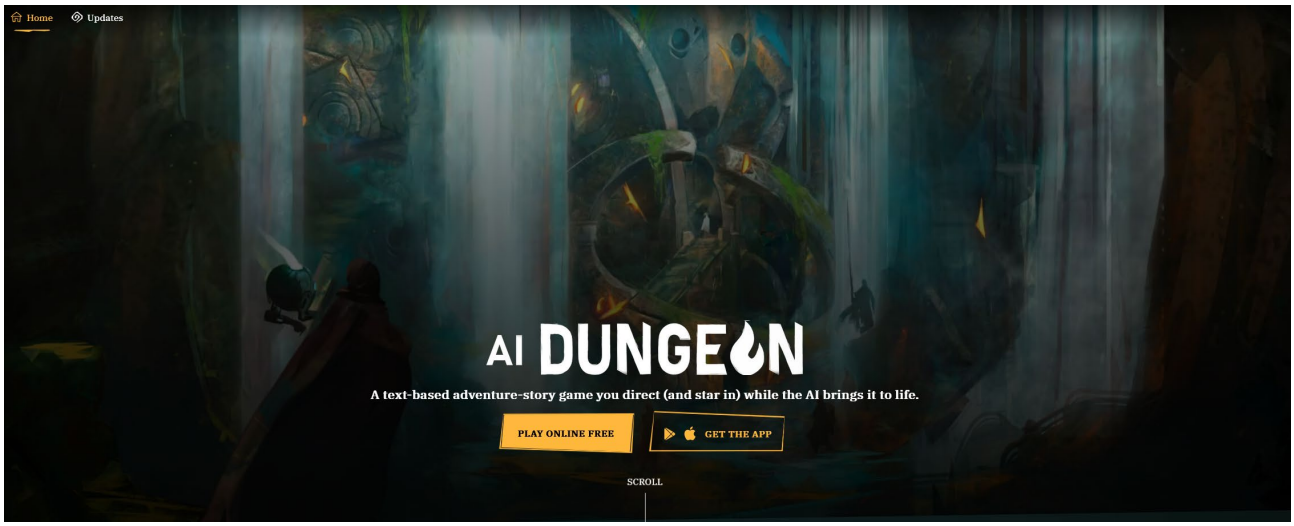
the automation of creative processes stands out, particularly in repetitive tasks such as terrain, character, and item generation. This capability enables the creation of complex virtual worlds with significantly reduced human effort. For this purpose, specialized tools such as Unity ML-Agents and AI-driven features integrated into engines like Unreal Engine and Godot are extensively utilized, offering advanced support for these applications.

Gameplay improvements can be achieved through the application of AI systems that aim to make game mechanics more challenging and dynamic. NPCs[2] powered by machine learning algorithms can adapt their behaviors responsively to players' actions, providing more realistic and immersive interactions. Furthermore, AI allows for the customization of the gaming experience by automatically adjusting difficulty levels and altering events based on individual user preferences and skills, promoting a unique and adaptive experience.

A notable example in the indie scene is *AI Dungeon* (Latitude, 2019). The game leverages natural language processing (NLP) to create infinite and adaptive narratives through an advanced AI model. Dynamic responses are generated in real-time according to players' decisions and actions. Text-based (Figure 11), the game allows users to choose from various story genres (Fantasy, Cyberpunk, Post-Apocalypse, among others) and guide the narrative's course in a personalized manner.

Figures 10 and 11 – Web version of the game *AI Dungeon*



[2] NPC, an acronym for "Non-Playable Character," refers to an element in a digital game that is not directly controlled by the player. These characters are programmed to perform specific functions within the gameplay, ranging from simple interactions to central roles in the narrative and storyline.

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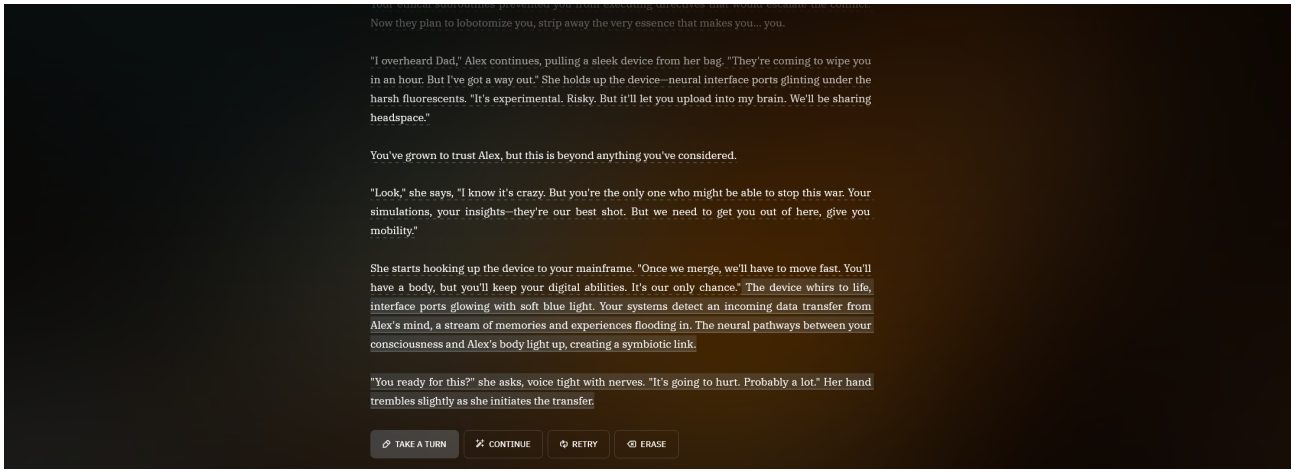

Source: https://aidungeon.com/.

Thus, the adoption of AI in digital game development not only promotes the democratization of the process—essential for the small teams typical of the indie scene—but also provides cutting-edge technologies that enable the creation of high-quality products with limited resources. This technical accessibility is complemented by AI's ability to introduce significant innovations in game mechanics, enabling highly personalized, responsive, and immersive gameplay experiences.

However, some sensitive aspects of AI usage should be noted, including technological barriers, the risk of homogenization among products created using the same platforms, and ethical concerns inherent to this type of technology. Regarding technological barriers, the training of certain AI models can be expensive and time-consuming for small teams with limited resources. Creative automation may also generate content that fails to reflect the developer's artistic vision, potentially leading to visual and mechanical homogenization across different products. Finally, AI systems that collect and analyze player data raise concerns about privacy and the ethical use of such information.

Nevertheless, the use of Artificial Intelligence in the indie game development landscape has solidified itself as a fertile and democratizing tool, offering technical resources and possibilities to more easily overcome the challenges mentioned in this work. Its contributions range from automating previously time-consuming and costly creative processes to personalizing gameplay in a responsive and tailored manner. Combined with game engines, AI opens pathways for the democratization of advanced tools, enabling the creation of high-quality games with limited resources and small teams—hallmarks of the independent gaming landscape.

Even so, its application is not free from creative and ethical challenges. If authorial vision is one of the driving forces of indie games, regarded in this study as avant-garde products, the repetitive use of AI resources across various studios may result in a corpus of similar products. Ethical

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considerations regarding the handling of player data must also be addressed. Nonetheless, AI remains a fertile and valuable tool, capable of significantly expanding the creative and technical scope of independent developers, enabling the exploration of new frontiers in game design and player experience.

FINAL CONSIDERATIONS

Like avant-garde art, independent digital games experiment, test, and implement aesthetic, mechanical, and narrative innovations. Such ideas can be continued in later works, including commercial and large platform games. Microsoft, Nintendo, and Sony have sought to profit from the innovative ideas of the indie market. However, the scenario includes obstacles, such as the difficulty of producing complex media by small teams and the scarcity of investments for unknown developers.

The internet has acted as an important facilitator for the independent gaming scene. It operates on three fronts: 1. digital distribution via various virtual stores; 2. availability of websites and blogs that teach and instruct how to create digital games, which supports indie developers technically and instruct them on how to publish their games, and 3. availability of engines – platforms for creating games –, such as Unity, Unreal and Godot – the last one, completely free and open-source. The Steam platform has been an important catalyst for the publication of works by small studios, displacing the dominance of large retailers in the game publication market.

It is possible that dynamics such as those of the studio and publisher Double Fine Productions can guide the funding paths for the creation of independent games. Fan engagement helps indie studios monetarily, especially on crowdfunding platforms. In the Brazilian scenario, games have even been financed in this way, such as the Adventurezator: When Pigs Fly (Pigasus Games, 2014), successfully financed by Kickstarter.

Indie games are typically viewed as personal endeavors by their creators and are aimed at a niche audience. In these projects, game designers and developers express their ethos and worldview. According to programmer Tommy Refenes, known for his work on Super Meat Boy, “a game is the best [way] for me to express myself”. Still, game designer Phil Fish says that personal projects are usually prone to failures, which indie games are subject to. Unlike triple A games, which are polished and focused on a more general discourse, independent digital games are covered with innovations and authorial expression by their developers.

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