# ANALOGUE GAME-BASED LEARNING TO ADDRESS UNDEREMPLOYMENT OF PEOPLE WITH INTELLECTUAL DISABILITY: RESOURCES AND BEST PRACTICES

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**Abstract**

This chapter delineates an inquiry into the prevalent unemployment rates among People with Disabilities (PwD), focusing on the systemic impediments and societal biases that preclude their full participation in the labour market. As one of the potential paths, it introduces Game-Based Learning (GBL) as an intervention to ameliorate these disparities, particularly for People with Intellectual Disability (PwID). The objectives include a critical examination of current employment challenges faced by this cohort, an exposition of GBL and its pedagogical potential, and a presentation of empirical evidence underscoring the efficacy of games in cultivating pivotal employment-driven skills. Further, it scrutinises the instrumental roles of support workers in defining GBL initiatives, devising actionable strategies for the needs of PwID, and navigating the ethical terrain in the implementation of reasonable accommodations and assistive technologies. Therefore, it advocates for a preliminary evaluative engagement with selected games by pedagogical facilitators to ensure alignment with the specific developmental requisites and aspirations of the target demographic.

**Keywords:** Game-Based Learning; Intellectual Disability; Employment

Barriers; Analogue Games; Accessibility.

**Relevance of the Chapter for People with Intellectual Disability (PwID)**

The chapter delineates strategies to enhance the employability of individuals with Intellectual Disability (PwID) utilising Game-Based Learning (GBL). It explores GBL's efficacy in refining skills vital for workforce integration, enhancing negotiation and communication abilities among PwID. Highlighting specific games designed to cultivate these essential competencies, the chapter assesses their utility in preparing PwID for employment challenges. It also addresses potential barriers to implementing GBL for PwID, including accessibility issues, the need for tailored game modifications, and overcoming societal and institutional biases against the employability of PwID.

**Objectives of this Training Subsection**

- Shed light on current unemployment rates for People with Disabilities (PwD), as well as the main challenges that keep this demographic from the workforce.
- Conduct an overview of GBL and its benefits to PwID.
- Present documents that support how games can help develop key skills that are desirable to combat the unemployment rates of PwD.
- Discuss the roles of Educators, Therapists and Caretakers in facilitating GBL for PwID.
- Develop strategies to apply GBL with this specific demographic, considering the reasonable and applicable accommodations.
- Discuss the ethical considerations in implementing reasonable accommodations and ATs, considering factors like individual autonomy, dignity, and equal opportunities.

**Introduction**

There has been an increasing interest in using analogue GBL to tackle different educational and developmental challenges in recent years (Maratou et al., 2023; Sousa et al., 2023a). This emergence of the analogue may be a natural response to over-digitization, digital fatigue and, at the same time, the technological barriers that exist in some educational contexts (Marenco, & Seidl, 2021; Sousa et al., 2023b). This trend has expanded to include a wide range of populations, including individuals who encounter difficulties in finding employment due to the stigma and systemic barriers imposed on PwID.

Analogue games provide a distinct platform for cultivating proficiency in various domains. Significantly, their utilisation in meeting the requirements of PwID has gained momentum, emphasising the potential to connect the divide between acquiring skills and finding employment opportunities. This introduction aims to examine the convergence of analogue GBL, the significance of addressing employment issues in the intellectual disability community, and the substantial role that games play in skill enhancement, particularly as a means of improving employability.

**Analogue Game-Based Learning in Skill Development**

According to Inclusion Europe's 2021 report, while the employment rate of the European population is 74.8%, only 50.8% of PwD are employed. When considering specifically PwID, this number drastically drops: 36% in Ireland, 6% in Scotland and 3% in Portugal. Another important factor to consider is that this rate of employment is mostly composed of what is called "sheltered workshops" – which in most cases are unregulated, temporary and low-paid jobs (Inclusion Europe, 2021). Moreover, when analysing Sustainable Development Goal (SDG) 8 – which aims to offer equal access to job opportunities – and, more specifically, SDG 8.5 – which focuses on gender, youth and disability – there has not been a single progress report in regard to

the development of PwD's employability ratings and standards since 2016, indicating that there has not been significant development on that front for almost a decade (United Nations, n.d.).

Furthermore, we must take into consideration the United Nations Convention on the Rights of Persons with Disabilities (CRPD), which states that "disability is an evolving concept and that disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others" (United Nations, 2006). In that regard, one of the most prevalent and steep barriers of access of people with disabilities to equal employment opportunities is education (European Disability Forum, 2023, p.107). Workplaces increasingly consider communication, teamwork, time management – which are often referred to as "soft skills" – as requirements for job placements, and GBL has been demonstrated to be an effective path to bridge the gap of unemployment to PwID. Games, in this context, can be powerful tools to encourage critical thinking, decision-making, problem-solving, interaction and communication, and emotional skills (Vygotsky, [1926] 2004, apud Quast, 2022, p.55).

Moreover, Analogue Games, in particular, rely on the interaction between players to function, since all players need to be aware of the rules in order to effectively play. This "collective intelligence" that analogue games require of players is the most fundamental difference between a tabletop game and a digital game: the pieces are only moved if someone moves them, and the rules only apply if all players are aware and in agreement about them, as opposed to digital games, in which a computer will act as rule-enforcer for the players and facilitate the game dynamic (Léste, 2021, p.47).

When comparing games that exist in both physical and digital medium,

> [In digital games] players do not need to understand the rules comprehensively to play. Physical Pandemic [a board game] is simply a box of assorted objects until a player decides to read the rulebook. As the digital version [of the same game] reacts to their actions automatically, players can explore the game's mechanics and learn how they operate over time. (Stolee, 2020, p.15)

Initially, that can be perceived as a positive aspect of using digital games, especially when considering that PwID might face particular challenges when trying to play games on their own. However, it is precisely because analogue games require players to have full awareness and control of the game elements that it offers more important benefits to game-based learning strategies, especially if they are to be applied outside of the scope of the game – in this case, to focus on abilities that can be transferable to workplace activities and scenarios, such as hand-eye coordination, resource management, comprehending and following rules, etc.

Furthermore, on top of not offering barriers of access tied to digital literacy, the development of the collective intelligence to play the game will often require players to be able to compromise, communicate, find common ground, which are also invaluable skills to have in the workplace.

Currently one of the best examples of commercial games that have taken this approach is the Asmodee Access+ initiative (Asmodee, n.d. a). Asmodee, which is one of the biggest game publishers in the world, partnered with healthcare professionals to adapt some of their games to promote equal access to PwD in tabletop games. Currently, by 2024, there are three games that have already been adapted: Dobble, Timeline, and Cortex Challenge, which have also been evaluated in the efficiency with which they help develop 8 different skills: Emotional Engagement, Short-term Memory, Speech and Discourse, Planning, Motor Skills, Social Relations, Visual-spatial Processing, and Mental Imaging.

Each of the specialists that were involved in the project also offered personal testimonies that go more in-depth about the benefits of playing with patients in health-care scenarios; however, two of the most interesting points they make for this context are that: using games as tools allows for players to develop skills without realising the specific effort they are making (Asmodee, n.d. b); and playing encourages equality between players, blurring the separation between health-care professionals [caretakers and trainers, who can be sometimes perceived as being in a position of power] and patients [PwID, who

can be sometimes perceived as being in a position of vulnerability] (Asmodee, n.d. b). These perspectives are particularly important to keep in mind because they enlighten how GBL can detract the focus of the activity from "someone providing aid or training to PwID" – which deepens their dependence on others – to, instead, fostering a more egalitarian activity, that will have direct or indirect benefits to all players in individual ways – thus, promoting independence and empowerment.

Another very positive example is the usage of Tabletop Role-playing Games to improve the social skills of young people in the autism spectrum, via group therapy sessions (Henning, et al. 2024). The authors correlate the development of social skills with many desirable outcomes, some of which are directly related to employability, such as: interpersonal training in companies, self-awareness training, training in sales techniques (p.2); and making friends and building positive and healthy relationships (p.2), which are useful tools for networking. The usage of role-playing games, which are less structured than tabletop games, also has the benefit of allowing for greater personalization of experiences and developmental goals.

Because of that, in preparation for the study, the therapists also conducted individual interviews with the participants and their parents, in order to formulate specific target behaviours that were desirable for each individual participant. During the sessions, these target behaviours were constantly reinforced by the therapists – either by direct praise, by receiving bonuses to their characters (new equipment, abilities, or in-game monetary rewards), or advancing by group objectives. Therefore, although the activity was conducted in groups, each participant had particular goals and challenges that they were encouraged to face inside a safe space (p.5).

Moreover, the team devised a revised version of the Goal Attainment Scaling method (Kiresuk, Sherman 1968), which they called the "Homework scale" (p.4). This scale revolves around selecting points of assessment that were tailored to the particular needs of each participant – in collaboration with them and their parents –, that were tied to tasks they could perform outside of the group sessions (e.g.: talking to someone new in school, for a participant that faced

particular challenges in engaging in conversation with people outside their regular social circles). Therefore, while the sessions allowed for the participants to practise target behaviour in a safe environment, the structure and goals of the study also encouraged the transfer of these skills to real-life scenarios.

**Best practices for implementing GBL**

As early as 1965, Robert M. Gagné wrote in his book "The Conditions of Learning" that, in order for the learning process to be effective, the student needs to feel that what they are learning can be applicable to their particular context and real-life situations (1970 [1965]). For this reason, the first requisite to apply GBL is to identify what skills each individual person has already mastered, which are sometimes called "Adaptive Behaviour Scale (ABS)", "Short Adaptive Behaviour Scale (SABS)" (Hatton, et al., 2001), "Adult Independence Living Measurement Scale (AILMS)" (Zorzi et al., 2023), or "Independent Living Scale (ILS)" (Centre for Neuro Skills, 1986).

While there are many options to choose from, the most readily available one is the Independent Living Scale of the Centre for Neuro Skills. The document, however, was produced in 1986 and, therefore, includes some terms that are not up-to-date in terms of how to most ethically refer to PwID. It is also important to keep in mind that most of these forms are very extensive, and may include questions that could be of few relevance to specific scenarios. For this reason, if chosen as a guideline, we also recommend adapting the forms to be as short as possible – only including the questions that are relevant to the context – and to use language that is more positive-oriented and inclusive in general, as detailed in chapter 3 of this book. Moreover, many local institutions that work with PwID already have their specific assessment tools, and, therefore, will most likely be preferable, since they will be more tailored to the particular community in which the GBL approach will be applied.

After determining already-developed skills, the next step is to determine which goals each participant will have in their GBL journey. Do they have particular job goals or prospects in mind, which

would require specific skills to be honed? Do they feel the need to improve in a particular aspect of their lives? Are there specific local job placement programs (specific or not to PwID) that have explicit requirements and desirable skills?

This part of the process will undoubtedly be extremely particular to each institution and learner, much like an "Individual Development Plan", "Individual Transition Plan" (European Agency for Development in Special Needs Education, 2006), "Individual Plan for Inclusion", or "Individual Educational Plan", but there are some guidelines that should always be kept in mind:

- First of all, always follow the People With Disabilities Global Movement's motto: "Nothing For Us Without Us" (Sassaki, 2007): every step of the process should involve PwID.
- Always assume competence. If the individual displays a particular need, offer them the proper accommodations based on their Assistance Level requirement.
- Consult with their primary caretakers and health-care professionals as needed, but never to invalidate the individual's statements or desires.
- Inform them of their rights to have trusted people accompanying them every step of the way.
- If at all possible, involve a multidisciplinary team, which can include therapists, occupational therapists, and other specialities as needed.
- Determine goals that should be achieved during the GBL sessions and other goals that could be achieved outside the context of the intervention. These goals, naturally, should be aligned amongst themselves, so that there is more likelihood of the transfer of skills happening.

When each learner's skill sets and goals are defined, it is time to choose games that will improve upon already existing skills or help develop new ones – but, preferably, both. The easiest way to do that is to browse game publishers' websites for games and reference the game mechanics of the prospective games. For instance, if we desire to develop financial skills, we could select games that involve "worker

placement" and "resource management" skills, such as Carcassonne; if we desire to develop fast reflexes, we could select matching games that are time-sensitive, such as "Dobble/Spot It", or "Ghost Blitz"; and if we desire to develop fine motor skills, we can select games that revolve around equilibrium and stacking, such as "Jenga". For a full list of games and game mechanics, we recommend the boardgamegeek. com website, and the book "Building Blocks of Tabletop Games" (Engelstein, Shalev, 2022).

Next, we present a list of desirable skills and games that help develop them, based on the "Catalog of Educational Games" (Galápagos Jogos, 2022 [free translation]), which is a document that relates games to the development of the "Multiple Intelligences Theory" (MI), coined by Howard Gardner (1983):

- Linguistic Intelligence: Black Stories Jr. (collection), Concept/ Concept Kids, Dixit, Dream On, Imagine, Story Cubes;
- Logical/Mathematical Intelligence: Concept/Concept Kids, Dobble/Spot it, Dream On, Imagine, SET, Timeline;
- Spatial Intelligence: Dobble/Spot it, Imagine, SET;
- Interpersonal Intelligence: Black Stories Jr. (collection), Concept/ Concept Kids, Dixit, Dream On, Imagine, SET;
- Intrapersonal Intelligence: Black Stories Jr. (collection), Concept/ Concept Kids, Dixit, Dream On, Imagine, SET;

Furthermore, we present another list of desirable skills and games that help develop them, based on the "BNCC and Tabletop Games" (Devir Escolas, 2018 [free translation]), which is a document that relates games to the development of the skills detailed in Brazilian's "Common National Curriculum Base" (*Base Nacional Comum Curricular*, free translation):

- Communication: Fast Food Fear!;
- Logical Reasoning: SET;
- Negotiation: Checkpoint Charlie, Carcassonne;
- Teamwork: Codenames, Fast Food Fear!;

Ultimately, the implementation of GBL for PwID necessitates a careful and considerate approach by support staff, teachers, and family

members. Central to this process is the principle of direct engagement with the games themselves by these people before introducing them to learners with disabilities. This preliminary step serves not only to assess the suitability of a game for the individual or group's specific needs and abilities but also to familiarise the facilitators with the game mechanics and potential learning outcomes. By playing the games first, educators and caregivers can better tailor the learning experience to the PwID's developed skills, personal goals, and interests, ensuring a more effective and meaningful learning journey. This practice aligns with the overarching goal of GBL: to create an inclusive, engaging, and empowering educational environment where PwID can thrive and achieve their fullest potential.

## Addressing the "Lack of Evidence" of GBL as an Effective Educational Tool

Many studies that have been conducted about GBL generally support that there is a lack of statistically relevant data to conclude that GBL is an effective educational tool. However, most of these studies centre around what is called the "Chess Effect" hypothesis (Sala, Foley, Gobet, 2017), which is the idea that chess, by virtue of being a cognitively demanding game that involves logical and spatial reasoning, will be able to positively impact student's performance in school. This phenomenon would be what is called "far transfer", which means that the generalisation of chess-related skills is so far removed from what is being evaluated by academic performance that they are loosely related (Sala, Foley, Gobet, 2017), which is supported by other studies that suggest that chess-related skills are context-bound (Islam, Lee, Nicholas, 2021), and therefore not applicable to in-class settings and evaluations.

In that regard, the issue with the current evaluation of GBL is with the chosen methods – statistical evaluations of long-term grade changes compared to control groups – and object of evaluation – since the specific skills that chess develops are not what is being evaluated. This is precisely why this chapter is adamant about the development of individual educational plans for students or groups, that are

focused on specific skills that are important to be developed, and to choose specific games that relate to those skills, in order to heighten the propensity of near transfer of occurring.


**Conclusion**

In his book "Homo Ludens", Johan Huizinga (2016[1938]) talks at length about playing as a cultural phenomenon intrinsically tied to humanity's development. Despite the modern criticism of some of his ideas, we must acknowledge the merit that playing is, undoubtedly, an opportunity to experiment with different scenarios, activities, social dynamics and skills. In that regard, we must consider that, aside from the educational, social and cognitive benefits of playing that were laid out throughout the chapter, playing in itself is a rewarding activity, and should be regarded as such.

Even so, the objective of this chapter is to demonstrate the benefits of GBL in addressing the unemployment rates of PwID. As mentioned before, games provide a very important opportunity to play out scenarios and test skills in a safe – and, hopefully, fun – environment, relieving some of the pressure that some people might feel when they are told that they need to practise a specific skill or task to achieve a particular goal.

Another important aspect of specifically analogue GBL is that, in order to play, all players need to be able to meet two very basic requirements: comprehend and follow rules; and be able to be in agreement with others as to what those rules are. Moreover, most games stimulate player interaction, healthy competition, cooperation, and many other soft skills that are considered increasingly important for the workplace.

Furthermore, this chapter also indicates some games that have been indicated to develop certain skills, types of intelligence, and abilities – while also offering some resources and websites for those who are interested in conducting their own follow-up research. In addition, we indicate the role which caretakers, healthcare professionals and educators should take for the GBL approach, and suggest some ways to assess already-developed skills, as well as define individual

educational goals – in partnership with PwID and their support system. Finally, we address some of the more common criticisms for GBL, namely that most studies focus on the transfer (or far transfer) of abilities from a non-formal/informal educational setting to a formal one – normally considering only statistical changes that are evaluated by possible improvements in grades from the schooling system, while not being closely related to the skills that the games in questions were supposed to help develop.

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