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Escape Rooms and the Work of Play for action in the age of technology: a study on the didactic perceptions of students at the Mediterranea University of Reggio Calabria.

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Abstract: This paper explores the pedagogical relationship between play, work, and learning, from Montessori's notion that "play is the child's work" to contemporary approaches of gamification and digital didactics. It reinterprets play as an essential component of cognitive, social, and emotional development, overcoming the traditional opposition between otium and negotium. Building on Biesta's concept of "learnification," the study situates the renewed educational value of play in the context of digital transformation accelerated by the COVID-19 pandemic.
A qualitative study involving 300 pre-service primary and kindergarten teachers at the University Mediterranea of Reggio Calabria investigated perceptions and practices through the design of digital Escape Rooms (ERs). Using platforms such as Genially, Canva, and PowerPoint, students created gamified learning units based on backward design and social constructivism, promoting collaboration, creativity, and self-assessment. The findings, interpreted through the frameworks of Volterrani (2021) and Vizzari (2022), highlight how gamification and educational ERs foster motivation, cooperation, and reflective learning. Playful, game-based methodologies thus emerge as powerful tools for experiential and value-centered education in contemporary digital teaching.

Keywords: Didactic**;** Work, Play; Escape room.

1. Introduction: *play is the child's work*

In the world of education and training, there is a powerful statement that seems oxymoronic and overturns the classic understanding of the opposition between otium and negotium, from which the humanities draw rich inspiration, rooting their ideas from educational systems all the way to political perspectives. The assertion capable of this revolutionary metamorphosis is represented by the words Montessori wrote in 1950 in The Method of Scientific Pedagogy Applied to Infant Education in the

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Children's Houses, which later became The Discovery of the Child (Montessori, 1972): play is the child's work.

Connecting play and work appears to be one of the most challenging educational innovations proposed by the short century. This is especially true given that, from other fronts, more or less veiled criticisms of the world of childhood and adolescence emerged, as they did not represent economic and political guarantees for the future at the time. From a forward-looking perspective, the great development of skills related to learning, sociality, creativity, empathy, and problem-solving that children's play-work put into action in the Children's Houses can be read in the pages of Hannah Arendt's Vita Activa (2017), whose original title The Human Condition relates to that oxymoronic symbolism, which Montessori had averted. In the perspective inaugurated by this philosophical reflection, work activity, far from being ennobling for man, as in the proverb attributed to Charles Darwin which insists on the economic and mercantile opposition between work, otium, and play, becomes devoted to the mere animal maintenance of life. Labor is preceded, in a hierarchical order, by making and, in the first position, by action itself. Action, in its union of word and deed—a creative and necessary union—is interpreted as the condition of humanity's responsive and responsible relationship with the human. The world of education and training, having internalized the legacy that sees work as a sacrifice, has sought to exorcise anything to do with the playful and the fun, Montessori continues, by structuring its teaching and educational action on a model of containment and repression, the best example of which is the school desk, of the child's vitality.

2. Learnification

Play, which became not only work but also a child's right in 1989 with the United Nations Convention on the Rights of the Child and Adolescent, ratified in Italy the following year, appears to be a difficult paradigm of meaning in didactic action. The higher the level of education, the less play seems to be used in school practice in favor of a continuous process of learnification (Biesta, 2022). With continuous questions and issues that illuminate the practical consequences of his reasoning, the author, in dialogue with Emmanuel Lévinas, Paulo Freire, Jacques Rancière, and other thinkers, asks not only what it means to be a teacher but also what it means to exist and act as a teacher today, and whether this has to do with a sociallyand politically strategic profession, capable of promoting emancipation and conscious development in the subjects of today's and tomorrow's society, almost as if to recall Arendt's responsibility of action.

The process of learnification became even more evident with the advent of the COVID-19 pandemic, which redefined every single moment of school life for children, teachers, and families, not only in relation to teaching methods but also in the transformation of the value of traditional play, generally relegated to free play, into digital and educational play (Bonaiuti, Calvani, 2017). Today, it is even presented as an important tool for the empowerment of vocational and professional guidance and training processes. The studies on gamification in the scientific literature of recent years have highlighted how the intrapersonal and interpersonal dynamics activated by a playful and digital learning dynamic have led to educational successes in students of all ages.

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3. Materials and Methods

To investigate the perceptions of future primary and kindergarten teachers in training at the University Mediterranea of Reggio Calabria, in the degree course in Primary Education Sciences, during the General Didactics and Innovative Methodologies course and its related laboratory module, the attending students were asked to try and create various learning units using the Escape room methodology. Escape rooms are a playful experience in which participants must collaborate to achieve a predetermined goal within a time limit. Usually, the main objective is to find a way to escape from one or more rooms. To do this, players must search for clues, decipher puzzles, and complete a series of tasks. In recent years, the world of pedagogy and didactics has adopted ERs because they promote active learning in which students are not passive spectators but true protagonists of their educational journey. This didactic approach is rooted in Vygotsky's theory of social constructivism and emphasizes the crucial importance of interaction and collaboration for building knowledge in concrete and meaningful contexts (Rivoltella, Panciroli, 2023). The very nature of ERs, which requires solving puzzles and overcoming challenges together, not only improves cognitive skills but also strengthens relational dynamics, promoting cooperative learning. The playful element inherent in the game stimulates intrinsic motivation, pushing participants to engage with enthusiasm and transforming learning into an engaging and unforgettable experience. For all these reasons, ERs can become an ideal teaching tool for modern education. They adapt perfectly to the needs of an increasingly digital generation looking for interactive and important formative experiences, offering an innovative and stimulating approach to education. The final purpose of this proposal is to understand, through the students' work—who designed the ERs as digital artifacts useful for both planning, teaching, and assessment— how the point of view of future teachers changes with respect to expectations, prejudices, or personal experiences, how these change, and how professional competence is enriched in the comparison with the creation of digital and blended learning environments. Understanding the point of view of future actors in the world of education and training is probably the most objective measure for looking at the changes in society and humanity, trying to govern the age of technology. To this end, the qualitative research on a sample of about 300 students, whose perceptions and experiences represent the possibility of building, through thematic analysis, the narratives, themes, concepts, and recurring patterns, and through narrative analysis, the metaphors, symbols, and languages used, a detailed mapping of the ideas, motivations, ambitions, purposes, and intentions of the teachers who will put into practice the actions of future digital didactics.

During the 64 hours of laboratory work in *General Didactics and Innovative Methodologies*, the 300 participants—first-year students of the Primary Education Sciences degree course—were asked to design several Learning Units (LU). The backward design of the LU (Castoldi, 2017), explored during the theoretical lessons, served as the framework for all the proposed activities. A specific task concerned the design of a LU in which the didactic mediation object (Damiano, 2016) was the creation of an *Escape Room* (ER).

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The students, divided into working groups of five or six people (for a total of about 50 submissions), simulated the collegial organization of weekly planning or coordination meetings. Each group chose a specific topic and, after estimating the time frame and the didactic-disciplinary objectives—as indicated by the *National Guidelines for the Curriculum of Preschool and the First Cycle of Education* (Ministerial Decree No. 254, November 16, 2012)—worked towards the related developmental goals.
Once each group had chosen the *integrating background* (a side narrative, a specific didactic topic, or a transversal theme), they began designing the ER, which could serve either as a didactic support for each stage of the design process or as a tool for assessment. After determining the purpose of the ER, each group had the opportunity to develop its own didactic device using an application of their choice.
The most widely used application—by many groups (around 40 out of 55)—was Genially. Although Genially is not a tool specifically dedicated to ERs but rather a general platform for creating interactive content, it proved particularly useful for its high level of interactivity. It allows users to transform any graphic element (images, text, icons) into a hotspot with a single click, a crucial feature for hiding clues and creating puzzles activated by clicking on objects. Its locking and password features also make it possible to protect pages, contents, or sections with secret codes—an essential function that simulates the final "key" or lock to be opened. Additionally, its transmediality allows the integration of external content from other sites or apps; its non-linear navigation enables branching paths or restricted access until a puzzle is solved; its wide range of ready-made templates and user-friendly environment make it accessible even to teachers and students with little experience in coding or digital design.

The remaining groups (15 in total) preferred the online graphic design platform Canva (8 groups) or Microsoft PowerPoint (7 groups). Although these choices reflected a greater familiarity with the tools, they presented significant challenges, as neither platform offers the native interactivity or gating functions essential for a structured game-based learning experience.

The themes chosen by the students were highly diverse, making it impossible to provide an exhaustive summary. For the purposes of this study, however, it is interesting to group them into three main categories.

A certain percentage (19%) chose to build their ERs around narrative themes, inspired by various genres and topics—from fairy tales to myths (e.g., *The Myth of Ariadne*), from children's literature classics (*Alice in Wonderland*) to more contemporary works such as *Harry Potter*. Another percentage (35%) focused on specific didactic content, developing gamified learning experiences around disciplinary topics - for instance, one ER centered on grammar and verb construction, while many others took a historical setting, such as the pyramids or ancient Rome. A third category (26%) preferred to dedicate their projects to civic education, with a particular focus on environmental issues, respect for nature, and sustainability, often linked to the principles of *Agenda 2030*. In conclusion, a fourth category, dedicated to the outer space and planetary systems.

In analysing the students' perceptions and their potentially future didactic practices through ER design, the intended function of the tool itself emerged as particularly significant. The vast majority of the projects sought to combine the transmissive phase—albeit in a playful form—with the self-assessment phase of the learning

process. Many ERs integrated these two moments through specific gating steps that effectively served as evaluation instruments for acquired knowledge.
Furthermore, the students considered it essential that the future learners could express, through simple feedback tests, their level of engagement—to assess how intrinsic motivation, active participation, emotional involvement, and cognitive connection were implemented, maintained, or, in some cases, negatively affected.

4. Theories of Gamification and Final Games

The term *gamification* refers to the application of game-like mechanisms, dynamics, and strategies—particularly those typical of video games—within non-game contexts, with the goal of promoting prosocial behaviors and learning processes (Volterrani, 2021). This methodological approach aims to make the execution of traditional tasks more motivating and engaging by integrating playful elements that foster active student participation and the development of multiple competencies.

In educational settings, gamification often takes the form of cooperative activities organized in groups where each member assumes distinct roles and responsibilities (Volterrani, 2021). Through narrative structure and gameplay design, students experience an immersive adventure in which learning occurs by employing game strategies oriented toward achieving a complex goal. Didactic activities are thus configured as challenges, set in symbolic or imaginative contexts, that stimulate collaboration and progression through increasing levels of difficulty until the "mission" is accomplished (Volterrani, 2021).

The primary objective of gamification is to encourage active interest and user engagement by fostering behavioral change through mechanisms of intrinsic motivation.

According to Volterrani (2021), gamification:

- applies game principles to non-play contexts to foster learning and the promotion of prosocial behaviors;
- integrates and enhances traditional learning objectives;
- promotes the acquisition of both academic and socio-emotional skills;
- replaces traditional assessment systems (grades) with progression mechanisms such as levels, experience points, and rewards;
- establishes a new model of learning environment;
- values cooperation within groups, rewarding effective role management and mutual support;
- is characterized as an engaging, challenging, and participatory methodology.

Malone and Lepper (1987) identify two fundamental dimensions of motivation in gameplay: the individual and the social. At the individual level, the main factors are challenge, curiosity, control, and fantasy; at the social level, cooperation, competition, and recognition emerge as key motivators.

Challenge is a central element, as it stimulates immediate action and personal commitment. In video games, activities are calibrated to the player's abilities, avoiding levels that are excessively difficult or too easy. Even in the event of failure, the game allows the player to try again, reducing the risk of frustration or avoidance behaviors. In contrast, in school contexts, failure can generate anxiety and concern, negatively influencing self-perception and the student–teacher relationship.

Curiosity—both sensory and cognitive—is fueled by the element of surprise and the desire to discover hidden elements, solve puzzles, or tackle stimulating problems. *Control*, on the other hand, is associated with a sense of autonomy and decision-making freedom: the player becomes the active protagonist of their own path, exercising direct power over actions and choices.

An analysis conducted on *Massively Multiplayer Online Games* (MMOGs) identified four main types of players (Maestri, 2018):

1. Explorer – motivated by the desire to explore and expand knowledge.
2. Achiever – oriented toward victory and the achievement of objectives, regardless of context.
3. Socializer – interested in the relational dimension and in socializing with other players.
4. Killer – focused on competition and the pleasure of prevailing over others, even through their defeat.

Escape Rooms

Escape Rooms are physical or virtual environments in which participants must solve puzzles, identify clues, and find solutions that enable them to obtain the so-called final key required to escape (Vizzari, 2022). This "key" may take various forms—codes, objects, or passwords—and represents the ultimate goal of the playful-educational experience.

The origins of escape rooms can be traced back to several precursor activities, such as treasure hunts, murder mystery dinners, and detective, spy, or adventure novels and films (Vizzari, 2022).

Different types of escape experiences can be distinguished:

- Escape games: three-dimensional virtual environments in which the goal is to escape by solving puzzles; these later evolved into applications for mobile devices.
- Virtual escape rooms: experiences that integrate multimedia elements (videos, documents, web resources), often characterized by transmediality and created through digital platforms such as Genially, which allows for the design of interactive environments protected by passwords and enriched with external resources.
- Live escape rooms: real experiences set in themed physical spaces where participants must escape within a predetermined time limit (usually sixty minutes). In some versions, the presence of actors or game masters enhances realism and engagement.

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According to Vizzari (2022), an educational escape room can be defined as a game-based didactic device composed of six fundamental elements:

1. Narrative – This is the structural element that gives coherence and meaning to the experience. It provides the central theme and fosters participant immersion, serving as both a motivational and cognitive framework.
2. Game flow – Defines the sequence and organization of activities: introduction to the story, exploration, puzzle solving, and the overcoming of challenges. In educational versions, the structure can be adapted for large groups, such as entire classes, to promote collaboration and teamwork.
3. Puzzles and riddles – These constitute the operational core of the experience. They must align with the educational objectives and propose logical or practical challenges (e.g., object searches, message decoding, mathematical problem-solving, programming tasks, etc.). It is essential that they provide clear and progressive feedback.
4. Materials – Include the physical and/or digital elements required: objects, documents, technological supports, videos, audio, and narrative components consistent with the theme of the room. In some cases, the presence of facilitators or actors further enhances the experience.
5. Learning – Represents the main purpose of the educational escape room. It aims at the acquisition of specific learning outcomes—both disciplinary and transversal—and the strengthening of soft skills such as critical thinking, collaboration, and time management.
6. Final reflection (debriefing) – This is an essential phase for consolidating the educational experience. During the debriefing, participants process what they have learned, connecting new knowledge to prior understanding and thus completing the cycle of experiential learning.

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