# 1 Foundations of Play and Learning

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## 1.1 Play and the Time of Learning

This chapter establishes the conceptual ground of the ebook by clarifying why play matters for learning, how games organise experience, and why designed ludic environments can support meaningful knowledge acquisition.

Why do we speak about play? Because play profoundly affects learning and the ways in which knowledge is acquired. It strengthens motivation and stimulates the desire to apply what has been learned, especially when the learning experience is embedded in a real or simulated context. People struggle to understand why they should learn something whose usefulness or beauty they cannot perceive. What is not perceived as useful, engaging, or meaningful and is learned with difficulty risks remaining unapplied or having only a

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very limited impact. The question, then, becomes how to increase the perceived usefulness, enjoyment, and appeal of learning. From this perspective, play should not be understood as a break from cognitive work, but as a structured form of experience capable of making visible the meaning of what is learned. As John Dewey observed, learning becomes meaningful when it is rooted in action and experience: play, precisely because it is goal-oriented and governed by constraints, constructs a context in which knowledge can be used, not merely remembered.

Usefulness emerges when knowledge is tested in situations that simulate its real use. An economic role-playing game, for example, in which students must manage limited resources and make collective decisions, makes abstract concepts such as opportunity cost or risk immediately understandable. In this protected space, error is not punished but analysed: a dynamic that recalls Dewey's "learning by doing" and situated learning practices.

Enjoyment does not coincide with superficiality, but with deep engagement. Mihály Csíkszentmihályi (1990) described this condition as flow: a state in which challenge is proportionate to skill, attention is total, and feedback is immediate. This is what happens, for example, in a well-designed mathematical game, where each solution opens onto a slightly more complex new problem. Pleasure arises from perceived progress, not from simplifying the task.

Beauty, or fascination, concerns instead the form of the experience. Johan Huizinga, in *Homo Ludens*, emphasises how play creates a "magic circle", a separate space in which actions acquire symbolic value. An educational game that is carefully designed in its narrative, its rules, and its visual artifacts whether a historical simulation or a digital environment does not merely transmit content, but offers an experience endowed with meaning. It is in this formal coherence that learning becomes memorable. In this intertwining of usefulness, enjoyment, and beauty, play does not eliminate complexity, but makes it inhabitable. The developmental literature underscores the depth of this relationship: Chu and Schulz (2020), in a comprehensive review, demonstrate that play and curiosity are bidirectionally linked cognitive processes, each amplifying the other and together constituting a primary engine of knowledge construction across the lifespan. As Lev Vygotsky suggests, it is precisely in the mediating space between what one knows how to do and what one can learn that education finds its strength. Play, if well designed, occupies exactly this space: it does not simplify knowledge, but renders it desirable, practicable, and meaningful.

## 1.2 Play and Games: Definitions, Tensions, and Endurance in Human Experience

Defining play is a less simple operation than it may appear. Not because definitions are lacking, but because play seems to evade every attempt at a single, univocal reduction. It is an activity that crosses eras, cultures, and contexts, assuming different and sometimes contradictory forms, while maintaining a constant presence in human experience. Every definition of play, rather than closing its meaning, illuminates one of its tensions: between freedom and rule, gratuity and purpose, pleasure and discipline, escape and learning.

One of the most famous definitions is that proposed by Johan Huizinga, who in *Homo Ludens* describes play as a free, voluntary activity, separate from ordinary life, regulated by its own norms, and capable of creating a temporary order. For Huizinga, play is not a simple pastime, but a primary form of cultural production: law, war, art, and ritual all carry with them an original gaming structure. From this perspective, play precedes culture and constitutes one of the conditions of its possibility. It is serious without being 'useful' in any immediate sense, and it is precisely this apparent uselessness that makes it significant.

Partly opposed to this view is a tradition that has regarded play with suspicion. Plato, while recognising its educational value in the early years of life, tends to relegate it to a preliminary phase, destined to be surpassed by the rational and disciplined exercise of thought. In this perspective, play is tolerated insofar as it prepares for something more serious but loses legitimacy when it seeks to substitute itself for commitment and responsibility. Play thus becomes the opposite of work, duty, and production: a pause, an interruption, sometimes even a distraction.

This ambivalence runs through the whole history of the West. On the one hand, play is celebrated as a space of freedom; on the other, it is controlled, regulated, often marginalised. Aristotle considers it necessary as a form of rest, but subordinate to active and contemplative life. Play serves to restore energy, not to construct the meaning of existence. Here play is not foundational, but functional: a means of returning to work, not an experience endowed with intrinsic value.

A nearly opposite definition to Huizinga's emerges in the modern age, when play becomes progressively associated with childhood and with social irrelevance. In productivist thought, play is what does not produce economic value, what does not contribute directly to growth or efficiency. It is 'wasted' time, unproductive time. This idea, deeply rooted in industrial modernity, long shaped the educational perception of play, relegating it to a secondary or decorative tool. And yet, already in the twentieth century, this view was radically challenged. Jean Piaget interpreted play as a fundamental mode of

knowledge construction: through symbolic play and rule-based play, the child assimilates the world and reorganises cognitive structures. Here play does not escape, but authentic cognitive work, even if not immediately directed toward an external result.

Lev Vygotsky pushes this intuition even further, arguing that in play the child acts 'above' their usual level of competence. In pretend play, for example, the child follows rules that are not imposed from outside but internalised as part of the meaning of the activity. Play thus becomes a space of mediation between desire and norm, between freedom and discipline: a place where one learns to want what the rules make possible.

Another definition, only apparently distant, is that proposed by Roger Caillois, who distinguishes play according to fundamental axes: agon (competition), alea (chance), mimicry (simulation), and ilinx (vertigo). In this classification, play is not a single category, but a set of forms that respond to different needs and drives. Some are structured and rule-governed, others chaotic and destabilising. Play may be order or disorder, control or loss of control. Again, every partial definition reveals a polarity rather than a definitive synthesis.

If we broaden our gaze beyond the Western tradition, play appears as a recurring anthropological trait. Archaeological traces of board games, dice, and ritual competitions appear in the oldest civilisations: from Egypt to Mesopotamia, from pre-imperial China to pre-Columbian cultures. Play accompanies the birth of cities, social hierarchies, and mythical narratives. It is not a luxury of advanced societies, but a sign of their symbolic organisation.

In many cultures, play is intertwined with the sacred: contests, masks, and ritual simulations serve to stage conflict, death, and rebirth. Play becomes a form of representation of the world, a way of confronting the uncertainty of existence through temporary and shared rules. In this sense, play does not deny the seriousness of life but makes it manageable. These definitions sometimes convergent, sometimes opposed show how play has been alternatively conceived as freedom and discipline, gratuity and function, escape and learning, pleasure and cultural construction. It is precisely this ambivalence that makes it such a resilient category over time. Play survives because it knows how to change form without losing its deep function: giving meaning to human action when meaning is not immediately given.

It is from this horizon that space opens to consider play as entertainment, a dimension often undervalued but central in human history. Entertainment is not merely distraction: it is one of the ways through which societies work through desires, motivations, and shared pleasures. Play, as entertainment, marks the passage from mere survival to civilisation; it indicates that a community has enough time, resources, and imagination to devote itself to what is not immediately necessary, but profoundly human.

From this perspective, play approaches the idea of motivation and desire: it does not compel, it invites; it does not impose, it attracts. It is a space in which action is sustained by the pleasure of acting, not by fear of sanction. And perhaps it is precisely in this capacity to bind pleasure, meaning, and participation that play continues, after millennia, to be one of the quietest yet most powerful engines of human development.

## 1.3 Entertainment, Pastime, and the Paradox of Gratuitous Action

If play accompanies the history of humanity as a sign of civilisation, entertainment represents one of its most evident and, at the same time, most ambiguous forms. In common language, to entertain means 'to pass the time': a pastime, indeed. An activity that suspends, at least temporarily, the pressure of everyday life, dominated by an implicit yet pervasive rule: that of efficiency and effectiveness. In modern daily life, action is legitimate only if it is purposeful, measurable, and oriented toward a result. What does not produce an immediate effect appears superfluous, if not outright suspicious. In this framework, pastime seems to occupy the margins of meaningful experience. It is what one does 'meanwhile', when work is suspended, when the goal is not urgent.

The time of play and entertainment thus appears as an empty, residual time, withdrawn from the logic of productivity. And yet, it is precisely this apparent gratuity that reveals its deepest value. Play, as pastime, challenges the idea that every action must be justified by an external utility. It shows that there are experiences that matter because of the way they are lived, not only because of what they produce. The paradox is evident: play is often perceived as inefficient, and yet it is extraordinarily effective at generating engagement, attention, and motivation. One immerses oneself in play not because one must, but because one wants to. Not for an external reward, but for the pleasure of the experience itself.

In this sense, play reveals a truth often repressed in adult life: that learning, growth, and even personal transformation can also and sometimes above all occur through activities that are not immediately instrumental. Research confirms this: a broad review of the psychological literature on video games shows that even entertainment-oriented play can foster learning, emotional development, and prosocial behaviour (Granic, Lobel, Engels 2014).

Play, in fact, is not a simple suspension of the rule, but its temporary rewriting. Within it, precise rules, clear goals, and shared constraints apply. What changes is not the presence of structure, but its meaning: action is not imposed from outside, but voluntarily

accepted. It is in this free adherence that play becomes a powerful engine of motivation. The individual does not undergo the experience, but immerses themselves in it, recognising it as meaningful.

From this emerges another decisive element: play does not 'pass the time' neutrally. On the contrary, it occupies time in a dense, intentional, memorable way. It is an experience designed to leave something behind: a competence, a memory, an emotion, a new understanding of the world or of oneself. Even when it is not explicitly educational, play produces lasting effects. It is precisely this capacity to have an impact, despite its apparent gratuity, that makes it a crucial object of reflection.

At this point, the discourse on play inevitably encounters the theme of design. If play succeeds in generating pleasure, immersion, and motivation, it is not only because it 'happens', but because it is constructed according to a design. Rules, times, spaces, roles, feedback: nothing is accidental, especially in the more complex forms of play. Fun is not the opposite of structure; rather, it is its result. Hong et al. (2009) give this principle empirical grounding in an educational game context: their study of playfulness-based design found that games engineered to maximise perceived playfulness, through responsiveness, enjoyment, and a sense of control, produced significantly higher learning engagement and satisfaction than comparable games without these design properties, demonstrating that the playful texture of an experience is not decorative but constitutive. As Schell (2019) observes, the art of game design lies precisely in engineering the conditions from which pleasure emerges, treating structure not as a constraint on enjoyment but as its generative source.

A fundamental tension thus opens: is play an emergent and natural expression of human beings one need only think of the spontaneous play of children or of animals or is it an exercise in artificial design, the fruit of precise intentionality? The answer probably lies in the coexistence of both dimensions. Play arises as a natural impulse, but develops and is refined through design. It is precisely when the gaming instinct encounters conscious design that play becomes capable of sustaining complex, lasting, and transformative experiences.

In this sense, designing a game does not mean betraying its nature, but recognising its potential. It means creating the conditions so that pleasure is not ephemeral, so that pastime is not empty, so that entertainment becomes experience. It is in this passage from spontaneity to design that play prepares to become not only entertainment, but also a cultural, educational, and social tool.

## 1.4 The Learning Consequences of Play as a Designed Artifact

If we accept as valid the idea that play can be not only a spontaneous expression of human experience, but also an artificial artifact intentionally designed and oriented toward learning, then the educational implications are profound and not without ambiguity. Play ceases to be a simple motivational accessory and becomes a full-fledged pedagogical device, subject to choices, responsibilities, and evaluative criteria.

The first consequence concerns the role of educational intentionality. A game designed for learning cannot be limited to being fun: it must incorporate cognitive objectives, competencies to be exercised, and forms of feedback that make progress visible. This implies a redefinition of educational work: the teacher or designer does not 'add' the game afterward, but constructs an environment in which learning is inscribed in the very structure of the experience. The risk, however, is evident: when intentionality becomes too explicit, the game loses its dimension of freedom and is perceived as disguised exercise. Dickey (2005) captures this tension in her analysis of engagement strategies in computer and video games: the most effective instructional designs are those that embed learning objectives within the game's intrinsic logic, rather than imposing them from outside.

From this follows a second, more subtle consequence: the transformation of the relation between pleasure and purpose. In spontaneous play, pleasure is an end in itself; in designed educational play, pleasure becomes a means. This shift is not neutral. If the participant perceives that enjoyment is instrumental, motivation risks becoming extrinsic. Paradoxically, play works only if it does not openly show that it wants to 'teach'. Design must therefore operate by subtraction, allowing learning to emerge from action more than to be declared.

A third consequence concerns the redefinition of error. In a game designed for learning, error is not a deviation to be corrected, but a necessary passage of the experience. This entails a deep cultural change: evaluating no longer means exclusively measuring the final result, but observing the process, the strategies adopted, and the capacity for adaptation. Play, in this sense, introduces a pedagogy of experimentation that often comes into tension with educational systems still strongly normative.

To assume play as an artifact also implies reflection on the responsibility of design. Every design choice, rules, levels of difficulty, reward systems, directs participants' behaviour and attention. Play is not neutral: it suggests what counts, what is rewarded, what can be ignored. To use play for learning therefore means assuming

responsibility for shaping experiences that influence values, attitudes, and ways of thinking, not only disciplinary knowledge.

A further consequence concerns the time of learning. Play breaks the traditional linearity of the didactic path. It does not proceed through exposition and verification, but through exploration, attempts, and returns. This makes learning less predictable, but often deeper. It does, however, require educational contexts capable of tolerating uncertainty and of recognising different learning times as legitimate.

Finally, to consider play as an artificial product leads one to question the boundary between education and entertainment. If play becomes a systematic tool of learning, there is a risk either of trivialising it or, conversely, of colonising the educational experience with superficial gaming logics. The challenge is not to 'make everything a game', but to recognise when and how play can open spaces of meaning that other devices fail to generate.

Ultimately, to assume play as an artifact designed for learning does not mean domesticating it, but accepting its complexity. As Woolston (2021) observes in a synthesis of the developmental science on play, researchers continue to debate precisely what play is and how it works, but converge on one point: its educational and developmental power cannot be captured by any single mechanism, and any account that simplifies it loses what matters most. Play works educationally only when it preserves a share of gratuity, ambiguity, and freedom. It is in this zone of tension between design and openness, between purpose and pleasure, that play can become one of the most powerful and, at the same time, most delicate forms of educational experience.

## 1.5 The Power of Design and the Artificial in Play Experiences

The power of design and the artificial in the construction of play experiences lies in their capacity to transform a natural impulse into an intentional, repeatable, and meaningful experience. If spontaneous play arises from the immediate need to explore, imitate, or experiment, designed play introduces a structure that directs that impulse without necessarily suffocating it. It is in this mediation between nature and artifice that play acquires depth and duration.

Design first of all makes possible the construction of contexts. Every play experience takes place within a bounded space physical, symbolic, or digital in which rules different from those of everyday life apply. This space is not given: it is designed. Through rules, goals, roles, and constraints, design creates a 'possible world' that invites action and makes experience inhabitable. The artificial, in this sense, is not falsification, but a condition of access to meaning.

A second element of strength concerns the control of complexity. Reality is often too opaque or too chaotic to be immediately understood. Designed play selects, simplifies, and renders visible the relationships among the variables at play. It does not eliminate complexity, but makes it explorable. In a well-designed game, the consequences of actions are perceptible, causal links emerge, and feedback guides learning. The artificial thus makes it possible to construct experiences that would be impossible, or too risky, in real life.

Design also intervenes in the time of experience. Artificial play can accelerate, slow down, or repeat situations, offering the player the possibility of retracing their steps, experimenting with alternatives, and learning through iteration. This manipulation of time is not an escape from reality, but a form of reflection embedded in action. Play thus becomes a training ground of experience, where time is shaped to favour understanding and mastery.

The time of learning, when mediated by play, withdraws from the linearity and rigid pacing typical of traditional educational models. It does not proceed through the progressive accumulation of content, nor through the orderly succession of objectives to be reached within fixed times, but through immersion, return, deviation, and meaningful repetition. Play introduces a qualitative rather than a quantitative time: a lived time, in which duration is determined by the intensity of the experience and not by its placement in a calendar. In this time, error does not interrupt the path, but prolongs and enriches it; repetition is not redundancy, but exploration of new possibilities. The player can slow down, accelerate, stop, begin again, following a rhythm that responds to their cognitive and emotional needs. This type of temporality favours deep learning because it allows one to inhabit problems, to remain within uncertainty, and to build understandings that mature gradually. Play, in this sense, does not eliminate the effort of learning, but redistributes it over time, making it sustainable and meaningful. The artificial design of the play experience makes possible this manipulation of time, creating spaces in which learning is bound not to the urgency of the result, but to the quality of attention and commitment.

A further point of strength concerns motivation. Designed play constructs conditions in which the desire to act arises from within the experience itself. Clear goals, progressive challenges, and systems of symbolic or narrative reward sustain commitment without recourse to external obligations. Here the artificial shows its paradoxical power: creating rules in order to generate freedom, imposing constraints in order to make pleasure possible. Design does not produce motivation, but makes it sustainable over time.

Design also makes it possible to integrate different dimensions of human experience: cognitive, emotional, social, and aesthetic. A game is not only a problem to be solved, but an experience to

be lived. Through careful attention to form narrative, aesthetics, rhythm, interaction design constructs a unity of meaning that favours immersion. The artificial, far from being cold or mechanical, becomes the place where experience is rendered coherent and memorable.

Finally, the power of the artificial lies in its transferability. A designed experience can be shared, adapted, and replicated in different contexts. This makes play a powerful tool not only for entertainment, but for education, training, and research. Design makes it possible to abstract from singular experience in order to build devices that speak to many, without losing the ability to engage the individual.

The transferability of the learning experience, made possible by designed play, poses a delicate challenge: how to build shareable experiences without homogenising, without rendering uniform what is by nature personal and situated. The strength of play lies precisely in its ability to offer a common structure rules, goals, and constraints within which each participant constructs a singular path.

The experience is the same only in appearance: in reality, each player traverses it with different competencies, motivations, strategies, and sensibilities. Design must not erase this difference but sustain it. A good game does not prescribe a single solution but opens a field of possibilities; it does not impose meaning, but renders it negotiable. In this way, the experience can be transferred reintroduced in different contexts, adapted to different publics without losing its capacity to generate personal meaning. The artificial, here, does not standardise, but makes possible the encounter between a stable structure and a multiplicity of interpretations.

It is in this tension between repeatability and uniqueness that play shows one of its deepest educational potentials: offering designed experiences that do not produce identical learnings, but comparable learnings, each rooted in the history and lived experience of the player.

One may conclude that design and the artificial are not the opposite of gaming spontaneity, but its cultural extension. Where natural play ignites desire, designed play constructs its path. It is in this fragile but fertile alliance that play becomes an intentional experience, capable of generating pleasure, meaning, and lasting learning.

## 1.6 Transferability and Reproducibility: Conditions and Limits of Gaming Experience

To affirm that a gaming learning experience is transferable means recognising that it can be reintroduced in different contexts without losing its educational function. However, when transferability is translated into reproducibility, a fundamental tension emerges: what is reproducible risks becoming standardised, whereas authentic

educational experience is always situated, relational, and partly unpredictable. Reproducibility, therefore, cannot be understood as an identical copy of experience, but as the recreation of the conditions that make experience possible.

The first condition of reproducibility concerns the formal structure of the game. Clear rules, legible goals, explicit constraints, and coherent mechanics constitute the transferable backbone of the experience. These elements can be replicated because they do not depend on individual participants, but on the design of the activity. It is this structure that allows the game to 'work' even in the absence of the original context. At the same time, the structure must be sufficiently open to accommodate different strategies; otherwise, reproduction is reduced to mechanical execution.

A second condition concerns the separation between structure and experiential content. What can be reproduced is the device, not the subjective experience it generates. Any attempt to reproduce emotions, learning times, or participants' reactions also leads to distortion. Authentic reproducibility accepts the impossibility of replicating experience in its full sense and focuses instead on the possibility of reactivating analogous processes: engagement, exploration, reflection, attribution of meaning.

A third fundamental condition is contextual adaptability. A transferable game must be capable of being modulated according to age, cultural context, prior competencies, and specific educational goals. Reproducibility is therefore not rigid, but parametric: what is reproduced is a set of relations among elements, not a fixed sequence of actions. This adaptability is what distinguishes a designed experience from a closed format.

A further condition concerns the role of the facilitator or educator. No gaming experience is fully reproducible without competent human mediation. The educator interprets the game, regulates its pacing, supports participants, values error, and favours reflection. Reproducibility therefore depends not only on design, but also on the capacity of those guiding the experience to understand its deeper meaning. Without this mediation, the game risks being reduced to procedure.

Finally, reproducibility requires clarity about the expected outcomes, not in terms of identical results, but in terms of types of learning. What must be reproducible is not that participants learn the same thing in the same way, but that they learn something relevant. Design must therefore make explicit which processes it intends to activate, problem solving, collaboration, critical thinking, awareness, while leaving open the concrete forms these processes will take. Weisberg, Hirsh-Pasek, and Golinkoff (2013) call for precisely this kind of nuanced approach: they argue that the educational potential of

play is best realised not by simplifying the activity, but by preserving its complexity while providing appropriate structure.

## 1.7 Expected Outcomes: Not Identical Results But Different Types of Learning

To affirm that the reproducibility of a gaming experience requires clarity about expected outcomes does not mean wishing for all participants to reach the same results, nor to produce homogeneous and measurable learning according to standardised criteria. On the contrary, it means recognising that what can be designed and reproduced is not the final outcome of learning, but the nature of the cognitive, emotional, and social process that the experience intends to activate. In other words, the educational design of play does not aim to guarantee what each individual will learn in the same way, but how learning may occur.

To speak of types of learning implies a shift in perspective: from output to process. A type of learning defines the kind of transformation expected in the participant's experience, without prescribing its specific forms. One may design a game to foster problem solving, strategic thinking, collaboration, metacognitive reflection, decision-making under uncertainty, or the construction of symbolic meaning. These types do not produce identical results, because each subject traverses them starting from their own baggage of competencies, motivations, and lived experiences. Yet they are sufficiently clear to orient design and sufficiently open to accommodate difference.

This distinction is crucial for reproducibility. If a game is designed to transmit specific content uniformly, its reproduction will be fragile: a change of context, audience, or mediation will suffice for the experience to lose effectiveness. If, instead, the game is designed to activate a type of learning, reproduction becomes more robust. Even if content changes, or participants interpret the experience differently, the game continues to perform its educational function because what is reproduced is the field of cognitive possibilities.

An example clarifies this point. A game designed to develop critical thinking does not guarantee that all participants formulate the same arguments or reach the same conclusions. What makes the experience reproducible is the fact that, in different contexts, participants are placed in the condition of comparing information, evaluating alternatives, justifying choices, and reflecting on consequences. The result is different each time, but the type of learning critical thinking remains recognisable.

This clarity about expected outcomes also has an ethical and design function. It prevents confusing the success of the experience

with the conformity of results and protects educational play from the risk of manipulation. When outcomes are defined as processes rather than as closed results, the participant retains a space of interpretive freedom. Learning is not imposed, but made possible. The game thus does not become an instrument of training, but an environment of guided exploration.

Finally, this conception allows for a more adequate evaluation of the experience. To evaluate a type of learning does not mean verifying whether everyone has learned the same thing, but observing whether the experience has effectively activated the intended processes. Reproducibility, in this sense, is not the repetition of the identical, but the coherence between design intention and lived experience, even when the latter takes different forms.

Ultimately, clarity about expected outcomes as types of learning is what makes possible a non-homogenising reproducibility. It makes it possible to design ludic experiences that, even while changing faces, contexts, and results, continue to produce meaningful learning. It is in this capacity to hold together intentionality and openness that designed play shows its most mature educational strength. In this sense, transferability as reproducibility is not a guarantee of uniformity, but a promise of reactivation. A well-designed game does not replicate identical experiences, but makes possible, each time, a new experience within a recognisable frame. It is precisely this balance between stability and openness that allows play to be at once artificial and alive, designed and unpredictable, reproducible and irreducibly personal.