# **Player Progression and Engagement Systems: A Psychological and Design Analysis for Simulation and Tycoon Games**

## **I. Introduction: The Landscape of Player Progression and Engagement**

### **A. Defining Player Progression and its Role in Engagement**

Player progression systems are integral to modern game design, serving as the structured framework through which players experience growth, achievement, and forward momentum. These systems are fundamentally cycles of players completing goals and receiving rewarding outcomes over time, a process meticulously designed to enhance player retention.1 They encompass a variety of mechanics that not only guide players toward objectives but also unlock new content and facilitate the experiential development of their knowledge and skills within the game world.2

In the context of commercial games, particularly those reliant on a sustained and active player base, the primary purpose of progression systems extends beyond mere content gating. They are crucial for instilling in players a sense that their time invested in the game is both rewarding and worthwhile.2 This perceived value of time is a critical factor; when players feel their efforts are acknowledged and lead to meaningful advancements, their engagement deepens, fostering a desire to continue playing. Thus, effective progression is not simply about unlocking the next item or level; it is about validating the player's commitment and journey, which in turn directly influences their long-term engagement and loyalty to the game. Happy players, whose efforts are consistently recognized and rewarded, become engaged players, and engaged players are the cornerstone of a thriving game community.2

### **B. Overview of the Report's Focus: Motivation, System Design, and Research Trees**

This report provides an expert-level analysis of player progression and engagement systems, with a particular emphasis on their application within simulation and tycoon games. The investigation will delve into the psychological foundations that underpin player motivation, examining established theories and their direct implications for system design. A core component will be the analysis of how progression and reward systems can be crafted to be intrinsically and extrinsically motivating.

Furthermore, the report will conduct a comparative analysis of progression mechanics in several successful simulation and tycoon titles, identifying common patterns and unique approaches that contribute to sustained long-term engagement. A significant portion will be dedicated to the design of research trees and technology unlock systems. This will involve detailing design patterns that ensure these systems feel meaningful, impactful, and provide genuine strategic agency to the player. The ultimate aim is to furnish game designers and developers with a comprehensive understanding and actionable insights to create more compelling and enduring player experiences.

## **II. Psychological Foundations of Player Motivation in Games**

Understanding what drives players is paramount to designing effective progression and engagement systems. Several psychological theories offer robust frameworks for analyzing player motivation, providing a basis for creating experiences that resonate deeply with players' intrinsic needs.

### **A. Self-Determination Theory (SDT): Fulfilling Needs for Autonomy, Competence, and Relatedness**

Self-Determination Theory (SDT) is a prominent macro-theory of human motivation that has significant applications in game design. It posits that all individuals have three fundamental psychological needs: autonomy, competence, and relatedness. The satisfaction of these needs is crucial for fostering intrinsic motivation, psychological growth, and overall well-being.3

* **Autonomy** refers to the need to feel a sense of control over one's actions and decisions, to experience agency and volition.3 In games, this can be manifested through open-world designs that allow freedom of exploration, such as in *The Legend of Zelda: Breath of the Wild*, or through meaningful choices that impact the narrative or game world, as seen in titles like *Mass Effect* or *The Witcher 3: Wild Hunt*.5 Progression systems can support autonomy by offering branching skill trees or allowing players to set and pursue their own goals within the game's framework.3
* **Competence** involves the need to feel effective, to develop skills, and to experience a sense of mastery and growth.3 Games can satisfy this need by presenting progressive difficulty, such as the challenging yet learnable encounters in *Dark Souls*, or by requiring strategic thinking and skill development, as in real-time strategy games like *StarCraft II*.5 Progression systems contribute to competence by providing clear learning curves, achievable challenges, and rewards that acknowledge and reinforce the player's growing mastery.3
* **Relatedness** is the need to feel connected to others, to experience a sense of belonging, and to care for and be cared for by others.3 This need can be met through multiplayer features that encourage cooperation or competition, as seen in *Fortnite* or *World of Warcraft*, or through compelling narratives and well-developed characters that foster emotional connections, exemplified by games like *The Last of Us* or *Persona 5*.5 Progression systems can foster relatedness through collaborative goals, shared achievements, or guild-based advancements.3

SDT also distinguishes between **intrinsic motivation** (engaging in an activity for the inherent enjoyment and satisfaction derived from the activity itself) and **extrinsic motivation** (behavior driven by external factors such as rewards, recognition, or the avoidance of punishment).3 A key principle for game designers is to strike a balance between these two. The core gameplay experience should be designed to be intrinsically rewarding. Extrinsic motivators, such as points, badges, or loot, should then be used thoughtfully to enhance this core experience, provide direction, and encourage desired behaviors, rather than overshadowing or undermining the inherent fun.3 Research suggests that immediate rewards can sometimes boost intrinsic motivation more effectively than delayed ones, but care must be taken, as poorly implemented extrinsic rewards can lead to the "overjustification effect," where an activity previously enjoyed for its own sake becomes dependent on external rewards, thereby diminishing intrinsic interest.3

The concept of autonomy within SDT can be further enriched by considering different forms of regulation. "Identified regulation," where an individual engages in behavior because it aligns with their personal goals and identity, and "integrated regulation," where one identifies with the values and needs inherent in a task, represent more autonomous forms of extrinsic motivation.8 This suggests that "meaningful choice" in progression systems transcends simple decision-making. It involves providing options that allow players to express their identity, pursue goals congruent with their personal values within the game's context, and feel that their choices are a genuine reflection of themselves. For instance, allowing a player to pursue a consistently altruistic or, conversely, a ruthlessly pragmatic path in a research tree, where both are viable and lead to distinct outcomes, offers a deeper sense of autonomy than merely choosing between two functionally similar weapon upgrades. This transforms progression from a mechanical process into an avenue for self-expression.

It is also critical to recognize that when games fail to adequately address these core psychological needs, players may become disengaged, frustrated, or even exhibit disruptive behaviors.3 This underscores the importance of designing progression systems that proactively nurture autonomy, competence, and relatedness. It is not sufficient for a system to merely avoid hindering these needs; it must actively support and satisfy them to cultivate a healthy and engaged player community over the long term.

### **B. Flow Theory: Achieving Immersion through Challenge-Skill Balance**

Flow Theory, developed by Mihaly Csikszentmihalyi, describes a mental state of energized focus, full immersion, and enjoyment in the process of an activity.10 This optimal experience, often referred to as being "in the zone," occurs when there is a perceived balance between the level of challenge presented by an activity and the skill level of the individual.10 If the challenge is too high relative to the player's skill, it can lead to anxiety and frustration. Conversely, if the challenge is too low for the player's developed skill, it can result in boredom and disengagement.10

Several conditions are conducive to achieving a flow state 10:

* **Clear Goals:** Players must have a clear understanding of what they need to achieve at each step.
* **Concentration on the Task at Hand:** The activity should demand focused attention, minimizing distractions.
* **Loss of Sense of Time:** Deep engagement in a flow state often leads to a distorted perception of time.
* **Intrinsic Rewards:** The activity itself should be inherently rewarding and enjoyable.
* **Direct and Immediate Feedback:** Players need clear and immediate feedback on their actions and progress, allowing them to adjust their performance.
* **Balance Between Player Skills and Challenge:** This is the cornerstone of Flow Theory. The challenge should dynamically adjust or be selectable to match the player's evolving skill level.
* **Sense of Control and Agency:** Players should feel that they have control over their actions and the situation.

In the context of game progression systems, Flow Theory implies that as players develop their skills through interaction with the game, the challenges presented by the progression system must also escalate appropriately.10 This creates a continuous loop of learning, improvement, and engagement. Some genres, like horror games, might intentionally create an imbalance by keeping challenges significantly above the player's perceived competency to evoke feelings of anxiety and tension.10

A crucial aspect of applying Flow Theory to progression is that it's not solely about increasing the difficulty of tasks. It's equally important for the system to provide opportunities for players to *perceive* their growing skill and understand how it relates to new challenges.10 If a progression system only escalates difficulty without clear feedback on skill improvement or moments for players to appreciate their newfound mastery, the perceived balance can be disrupted. This might lead to anxiety even if an objective balance exists. Therefore, progression systems should incorporate mechanisms for players to recognize their skill growth—perhaps through performance metrics, clear indicators of enhanced abilities, or opportunities to apply new skills in slightly less demanding contexts before tackling the next major hurdle. This ensures that the player feels their competence growing in tandem with the challenges, maintaining the delicate equilibrium required for flow.

### **C. Goal-Setting Theory: The Power of Clear and Challenging Objectives**

Goal-Setting Theory, primarily developed by Edwin Locke and Gary Latham, posits that specific and challenging goals, when accepted and accompanied by feedback, lead to higher performance and motivation than easy, vague, or no goals.13 This theory has direct applicability to designing engaging progression systems in games.

Key tenets of Goal-Setting Theory include:

* **Clarity:** Goals must be clear, specific, and measurable. Players should understand exactly what is expected of them.14
* **Challenge:** Goals should be moderately difficult. They need to be challenging enough to be stimulating and provide a sense of accomplishment upon achievement, but not so difficult that they are perceived as unattainable.14 Goals that are too easy are not motivating.14
* **Commitment:** Individuals are more motivated by goals they accept and are committed to. This commitment is often higher when individuals are involved in the goal-setting process.14
* **Feedback:** Regular and constructive feedback on progress toward goals is essential for maintaining motivation and allowing for adjustments in strategy.14
* **Task Complexity:** For complex tasks, goals should be broken down into smaller, more manageable sub-goals. This provides a clearer path and more frequent opportunities for experiencing success.14

The SMART framework (Specific, Measurable, Achievable, Relevant, Time-bound) is a common practical application of goal-setting principles.14 When applied to game progression, these principles suggest that systems should provide players with a series of clear short-term objectives (e.g., completing a specific research project, upgrading a particular facility) that contribute to broader long-term ambitions (e.g., launching a spaceship, becoming the dominant tycoon).14

An important consideration arising from Goal-Setting Theory is the role of player commitment. If players have a degree of agency in defining or prioritizing their progression goals, their commitment to achieving those goals is likely to be stronger than if they are solely pursuing objectives dictated by the game designer.14 While game designers inevitably set the overarching framework and ultimate win conditions, allowing players to choose their immediate focus within a research tree, select which quests to undertake next, or define personal milestones can significantly enhance their sense of ownership and motivation. This aligns with the principle of autonomy from SDT, suggesting that progression systems that empower players to set some of their own goals can lead to deeper and more sustained engagement.

### **D. Bartle's Taxonomy of Player Types: Designing for Diverse Motivations**

Richard Bartle's Taxonomy of Player Types categorizes players in multi-user dungeons (and by extension, many other game types) based on their preferred activities and motivations. The four primary types are Achievers, Explorers, Socializers, and Killers.17

* **Achievers (Diamonds):** These players are motivated by in-game goals, rewards, levels, and scores. They strive for mastery and tangible indicators of success.18 Progression systems appeal to them through comprehensive achievement lists, challenging player-versus-environment (PvE) content, and extensive loot or collectible systems.20
* **Explorers (Spades):** These players enjoy discovering the game world, uncovering its secrets, understanding its mechanics, and finding hidden lore or items.18 They are drawn to games with rich, open worlds, intricate details, and opportunities for discovery.20
* **Socializers (Hearts):** These players engage with games primarily for social interaction. They enjoy forming relationships, joining communities, cooperating with others, and general social activities within the game.18 Features like robust chat systems, guilds, and cooperative content are attractive to them.20
* **Killers (Clubs):** These players thrive on competition, asserting dominance over other players, and impacting the game world, sometimes negatively for others.18 They are motivated by player-versus-player (PvP) combat, leaderboards, and systems that allow for meaningful player interaction and impact.20

Progression and reward systems can be designed to cater to these diverse motivations by offering a variety of activities and rewards.18 For example, a research tree could offer paths that unlock powerful economic bonuses (Achiever), reveal hidden map areas or lore entries (Explorer), enable cooperative projects (Socializer), or grant significant competitive advantages (Killer).

It is important to note that players rarely fit perfectly into a single category; they often exhibit traits from multiple types, usually with a primary preference and secondary influences from others.18 Consequently, designing progression systems that rigidly target only one player type per feature may be suboptimal. A more robust approach involves creating systems that offer a blend of rewards and activities appealing to a mix of these motivations. For instance, a complex crafting system might appeal to Achievers (mastering all recipes), Explorers (discovering rare ingredients), and even Socializers (crafting items for friends or guildmates). This multifaceted design ensures broader appeal and sustained engagement across a diverse player base.

### **E. Synthesizing Motivational Theories for Holistic Player Engagement**

The psychological theories discussed—Self-Determination Theory, Flow Theory, Goal-Setting Theory, and Bartle's Taxonomy—are not mutually exclusive. In fact, the most engaging player progression and reward systems often weave together principles from each. A holistic approach to design considers how these theories can interact and reinforce one another to create a deeply motivating player experience.

For example, a well-designed research tree might allow a player **autonomy** (SDT) to choose a research path that aligns with their preferred playstyle (Bartle). This path could present **clear and challenging goals** (Goal-Setting Theory) in the form of research projects that require specific resources and time. Successfully completing these research projects, which are balanced to the player's current capabilities and resources, can induce a state of **flow** as they manage their economy and research efforts. The unlocked technology then enhances their **competence** (SDT) by providing new tools or abilities, which they can then use to pursue further goals, perhaps ones that offer social interaction or competitive advantage (Bartle's Socializer/Killer, SDT's Relatedness).

A foundational principle, emphasized by SDT, is the importance of designing the core gameplay to be intrinsically rewarding first.3 Once this intrinsic enjoyment is established, extrinsic motivators—such as unlockables, achievements, or currency—can be layered on to enhance the experience, provide direction, and cater to various player needs and types. The aim should always be for these extrinsic elements to support and amplify intrinsic fun, rather than overshadowing or replacing it.

The following table summarizes the core principles of these motivational theories and provides examples of their application in the design of player progression and reward systems:

**Table 1: Core Motivation Theories & Applications in Progression/Reward Systems**

| **Theory** | **Core Principles** | **Application to Progression/Rewards Design Examples** | **Relevant Sources** |
| --- | --- | --- | --- |
| Self-Determination Theory | Autonomy (control, agency), Competence (mastery, growth), Relatedness (connection) | Branching skill/tech trees, customizable goals; Clear feedback, learnable challenges, meaningful upgrades; Cooperative modes, guilds, strong narrative/character elements. | 3 |
| Flow Theory | Balance of challenge/skill, clear goals, immediate feedback, deep immersion | Dynamically adjusting difficulty, well-defined objectives in progression paths (e.g., research goals), clear audiovisual feedback on unlock/progress. | 10 |
| Goal-Setting Theory | Clear, challenging, attainable goals; commitment; feedback; task complexity | Specific, measurable research objectives; Milestones with increasing difficulty; Player involvement in setting some goals (e.g., research focus); Progress bars, completion notices. | 13 |
| Bartle's Player Types | Achievers, Explorers, Socializers, Killers | Diverse reward types: achievements/leaderboards (Achievers), hidden tech/lore (Explorers), collaborative research projects (Socializers), competitive advantages from tech (Killers). | 18 |

This synthesized approach, leveraging multiple psychological drivers, is key to creating progression systems that are not only mechanically sound but also deeply resonant with a wide range of players, fostering long-term engagement and satisfaction.

## **III. Designing Engaging Player Progression and Reward Systems**

Building upon the psychological foundations of motivation, the practical design of player progression and reward systems requires careful attention to several core principles. These principles ensure that the journey of advancement is clear, satisfying, and continually engaging for the player.

### **A. Core Principles: Clarity, Pacing, Feedback, and Meaningful Advancement**

Effective progression systems are built upon a foundation of clarity, appropriate pacing, consistent feedback, and advancements that feel genuinely meaningful to the player.

* **Clarity:** Players must have a clear understanding of their current status, the available goals, what actions are required to achieve those goals, and the benefits of doing so.5 This involves transparently communicating the rules and mechanics of the progression system. For example, a research tree should clearly indicate prerequisites, costs, and the effects of each technology.
* **Pacing:** The rate at which new content, challenges, abilities, and rewards are introduced is critical for maintaining player interest.1 A well-paced system avoids overwhelming the player with too much too soon, or boring them with long stretches of stagnation. Difficulty and complexity should generally increase gradually, allowing players to adapt and master new elements before further challenges are presented.
* **Feedback:** Systems must provide immediate and unambiguous feedback regarding player actions and their progress toward goals.5 This feedback can take many forms, including visual cues (e.g., progress bars filling, new items appearing), auditory signals (e.g., a sound effect upon leveling up), and explicit reward notifications. Consistent feedback reinforces desired behaviors and keeps players informed about their standing within the game's systems.
* **Meaningful Advancement:** Each step in the progression should feel significant to the player. Unlocks, upgrades, or new abilities should provide tangible benefits, open up new gameplay options, or allow players to overcome previous obstacles in a satisfying way.1 The concept of "meaningful advancement" is, however, not monolithic; its interpretation is often filtered through the lens of individual player motivations, as highlighted by frameworks like Bartle's Taxonomy or Self-Determination Theory. For instance, a player driven by achievement (an "Achiever" in Bartle's terms) might find a direct statistical enhancement, such as a +10% damage increase, highly meaningful. In contrast, an "Explorer" type might derive greater meaning from an unlock that grants access to a new, uncharted area of the game world or reveals a hidden piece of lore. Similarly, a player valuing competence might find meaning in an upgrade that allows them to execute a complex strategy more effectively. Therefore, to cater to a diverse player base, progression systems, particularly those involving choices like research trees, should strive to offer diverse *forms* of meaningfulness. This means providing a variety of unlock types that resonate with different player motivations—some offering direct power increases, others new strategic options, and still others access to new content or narrative elements.

### **B. Crafting Effective Reward Structures: Intrinsic and Extrinsic Motivators**

Reward structures are the backbone of extrinsic motivation in progression systems. As discussed under Self-Determination Theory, the key is to balance intrinsic enjoyment of the core gameplay with extrinsic rewards, ensuring the latter enhance rather than undermine the former.3

Rewards can take many forms, including 1:

* **Unlockable Content:** New game modes, abilities, characters, levels, cosmetic skins, or equipment.
* **Cosmetic Items & Social Recognition:** Items that allow for player expression or status symbols visible to other players.
* **Narrative Progression:** Unlocking new story chapters, character dialogues, or lore entries.
* **Resources & Currency:** In-game money or materials needed for further progression.
* **Statistical Increases & Power-Ups:** Direct improvements to character or system capabilities.

Reinforcement Theory provides a behavioral perspective on rewards, suggesting that positive reinforcement (providing desirable outcomes for specific actions) encourages repetition of those actions.5 Negative reinforcement (removing an aversive stimulus) or punishment (applying an aversive stimulus) can also guide behavior, though positive reinforcement is generally preferred for fostering enjoyment.

The manner in which extrinsic rewards are presented can significantly influence their impact on intrinsic motivation.3 If rewards are perceived primarily as controlling or as a bribe to engage in an activity (potentially leading to the overjustification effect, where intrinsic interest wanes once the reward is expected or removed), they can be detrimental. However, if rewards are framed as an acknowledgment of competence (e.g., a badge awarded for mastering a difficult skill), or as enabling new forms of autonomous expression or further skill development (e.g., unlocking advanced tools that allow for more complex creations), they are less likely to undermine intrinsic motivation. Instead, they can support the player's feelings of competence and autonomy. This implies that the user interface (UI), user experience (UX) design, and narrative framing surrounding the delivery of rewards are critical components in ensuring they positively contribute to the overall player experience.

### **C. The Art of Pacing: Introducing Unlocks and Content for Sustained Interest**

Effective pacing is essential for keeping players engaged over the long term. It involves carefully managing the introduction of new mechanics, abilities, challenges, and unlockable content.22 The goal is to maintain a rhythm that prevents players from feeling overwhelmed by too much complexity too quickly, or bored by a lack of new stimuli or meaningful progression.

Difficulty curves should generally rise in conjunction with the unlocking of new content or abilities. As players acquire new tools or master new skills, the game should present them with fresh challenges that require the application of these new acquisitions.22 This creates a satisfying loop where learning and progression directly enable the player to overcome increasingly complex obstacles.

A sense of continuous progression and accomplishment is vital.22 This can be achieved by structuring core gameplay loops that evolve over time, with new unlocks feeding back into and enhancing these loops across various timescales—from moment-to-moment actions to minute-to-minute objectives, and even hour-to-hour or day-to-day goals.21 For example, a technology unlocked in a tycoon game might initially provide a small efficiency boost (moment-to-moment impact), which contributes to faster completion of a production cycle (minute-to-minute impact), enabling the player to reach a larger financial milestone (hour-to-hour impact).

Furthermore, effective pacing often involves creating "anticipation loops." By allowing players to see upcoming, desirable unlocks or goals—even if they are currently inaccessible (e.g., greyed-out technologies in a research tree)—the system generates motivation.1 This foresight provides players with clear, intermediate objectives (Goal-Setting Theory) and a reason to persevere through current challenges. The anticipation of a powerful future reward can be a potent short-term motivator, bridging the gap between immediate activities and long-term gratification, thus ensuring players remain invested in their progression journey.

## **IV. Comparative Analysis: Progression and Engagement in Successful Simulation & Tycoon Games**

Analyzing successful titles within the simulation and tycoon genres reveals diverse approaches to player progression and engagement. These case studies highlight how different mechanics cater to player motivations and contribute to long-term playability.

### **A. Case Study: Deep Systemic Progression (e.g., Factorio, RimWorld)**

Games in this category are often characterized by complex, interconnected systems where progression is deeply intertwined with understanding and mastering these systems.

* Factorio: This game centers its progression on the automation of increasingly complex "science packs," which are used to advance along an extensive and exponentially scaling technology tree.28 Player expansion is driven by the dual pressures of resource depletion, necessitating the claiming of new territory, and escalating threats from native creatures ("biters") whose aggression is tied to the player's pollution output.28 Long-term goals typically involve launching a rocket, but many players continue by aiming for "megabase" construction or complete technological mastery.28 The primary rewards are the technological advancements themselves, the tangible increase in production throughput, and the visual spectacle of a sprawling, optimized factory.  
  The key engagement drivers in Factorio are the constant problem-solving involved in designing and optimizing production lines, the intellectual challenge of automation at scale, and the profound sense of accomplishment derived from mastering its complex systems and witnessing the factory's growth.28 In such deeply systemic games, progression is not merely about acquiring an unlock; it is about gaining an enhanced capability to interact with, manage, and ultimately dominate the game's intricate systems. For instance, unlocking advanced conveyor belts or trains in Factorio is rewarding not just for the item itself, but because it provides a solution to critical throughput bottlenecks that were previously hindering the factory's expansion and efficiency.28
* RimWorld: Progression in RimWorld is primarily driven by a research tree that allows colonies to advance from Neolithic beginnings to ultra-modern technology, unlocking new buildings, equipment, and abilities.30 The "Storyteller AI" plays a crucial role by dynamically generating events and challenges, which indirectly influences the pace of progression by adjusting difficulty and presenting new problems that research can help solve.30 Colony development goals are often long-term, such as building a spaceship to escape the planet or achieving the conditions for the Archonexus ending, alongside the emergent narratives created by the colonists' interactions and struggles.30 Rewards come in the form of new capabilities, improved chances of survival, and the satisfaction of achieving these ambitious long-term objectives.  
  The core engagement in RimWorld stems from its emergent storytelling, the constant challenge of overcoming adversity in a harsh environment, the creative freedom in base building and customization, and the attachment players form to their individual colonists.31 Similar to Factorio, the reward of progression is deeply connected to systemic mastery. Researching advanced turrets, for example, is directly tied to the player's ability to survive the increasingly dangerous raids orchestrated by the Storyteller AI, making each technological step a critical component of the colony's ongoing survival narrative.30

### **B. Case Study: Emergent Narrative and Skill-Based Growth (e.g., Stardew Valley, Cities: Skylines)**

These games often feature progression systems that support player creativity and personal goal-setting, leading to unique, player-driven narratives.

* Stardew Valley: The core gameplay loop involves daily farm activities, managing energy, and interacting with townsfolk.32 Skill leveling in areas like farming, mining, fishing, foraging, and combat occurs through repeated action, unlocking crafting recipes, new areas, and tool upgrades.32 Progression also includes building relationships with NPCs, potentially leading to marriage and unique events.32 Overarching goals are presented through the restoration of the Community Center or, alternatively, siding with the JojaMart corporation, offering distinct paths and rewards.32 Rewards are multifaceted, including monetary gain, material resources for crafting, access to new game content, tangible skill progression, and social/emotional rewards from relationships.  
  Key engagement drivers include a persistent positive feedback loop where effort consistently leads to reward, a strong sense of accomplishment, the freedom to pursue various activities (autonomy), a relaxing atmosphere, opportunities for social connection with NPCs (relatedness), and the satisfaction of collection and farm customization.32 In games like Stardew Valley, progression systems act as enablers for the player's self-authored story. The unlocks and skill improvements provide an expanding set of tools and opportunities, but the narrative of their farm, their relationships, and their impact on Pelican Town is largely shaped by the player's individual choices and goals, strongly supporting the need for autonomy.
* Cities: Skylines: Progression is marked by achieving "Milestones," which are gained through accumulating Experience Points (XP) from population growth, citizen happiness, and the placement of new buildings and infrastructure.34 Reaching milestones grants immediate monetary bonuses, Development Points, Expansion Permits (for acquiring new map tiles), an increased loan limit, and unlocks core game features like taxation, district creation, and new service categories.34 A "Development Tree" allows players to spend Development Points to unlock more advanced buildings and functionalities within each service category (e.g., different types of public transport or specialized power plants).34  
  Engagement in Cities: Skylines is driven by creative expression in city design, the intellectual challenge of solving complex urban problems (like traffic management or service provision), the sense of scale and ownership as the city grows, and the pursuit of optimization.35 Players often express a deep satisfaction in the decision-making process related to unlocks, such as choosing whether to prioritize road infrastructure, education, or emergency services in the early game, as these choices significantly shape the development trajectory of their unique city.36 Here, progression provides an expanding palette for player creativity and strategic urban planning, allowing each city to become a distinct expression of the player's vision.

### **C. Case Study: Management and Creative Expression (e.g., Planet Zoo, Two Point Hospital, Game Dev Tycoon, Anno 1800, Idle Miner Tycoon)**

Tycoon and management games often use progression to deepen strategic layers of resource allocation, optimization, and creative construction.

* Planet Zoo: Progression involves researching animals to unlock new enrichment items and educational information, and accumulating "zoo points" (derived from animal appeal, habitat quality, educational value, and zoo reputation) which in turn attract more guests.37 Core gameplay revolves around managing finances, ensuring high animal welfare standards, and satisfying guest needs, all while allowing for creative habitat and zoo design.37  
  Key Engagement Drivers: Creative construction of realistic animal habitats, the ethical considerations of animal care and conservation, detailed economic management, and the educational component of learning about different species.
* Two Point Hospital: The primary progression occurs through a "Career mode," where players manage a series of hospitals, each with specific star-rated objectives.39 Achieving these stars unlocks new illnesses to treat, new diagnostic and treatment rooms, new items (some purchased with Kudosh, a special currency), and advanced staff training options.39 A research system allows for the unlocking of further rooms and upgrades to existing medical equipment.39 Staff development through training and experience is also crucial.  
  Key Engagement Drivers: A distinct humorous theme, the puzzle-like challenge of diagnosing and curing bizarre illnesses, optimizing hospital layout and staff assignments for efficiency, and the satisfaction of achieving specific, often demanding, hospital goals.39
* Game Dev Tycoon: Players progress from a garage startup to a large development studio by successfully creating and selling video games.41 Progression is marked by office upgrades, which unlock more staff slots and eventually R&D and hardware labs.41 The R&D system allows players to research new game genres, topics, engine features (graphics, sound, AI), and even develop their own gaming hardware.41 Staff management involves hiring, training, and specializing employees to improve game quality and development speed.41 Market trends and platform popularity shift over time, requiring players to adapt their strategies.42  
  Key Engagement Drivers: The relatable theme of game development, strategic decision-making in choosing game combinations and R&D paths, the tangible sense of growing a company from scratch, and the thrill of achieving critical and commercial success with "hit" games.42
* Anno 1800: Progression revolves around advancing citizen populations through distinct tiers (Farmers, Workers, Artisans, Engineers, Investors), each with increasingly complex needs that drive the establishment of intricate production chains.35 Expansion to new islands and eventually new world regions is necessary to acquire diverse resources and fertilities.35 Managing trade routes between these specialized islands becomes a core logistical challenge.35 Unlocking Engineers and the subsequent introduction of electricity represents a major progression milestone, enabling significant industrial optimization.35 Later-game goals include constructing large-scale monuments that provide powerful bonuses.35  
  Key Engagement Drivers: The depth of its complex economic simulation, the continuous challenge of optimizing production and logistics, aesthetic city and island building, and the grand sense of building and managing an industrial-era empire.46
* Idle Miner Tycoon: The core loop is deceptively simple: Mine resources, Transport them, Sell them, and Upgrade the efficiency of each step.47 "Choke points" in this loop naturally guide players towards necessary upgrades. Progression involves unlocking new mineshafts, automating processes, and increasing the speed and capacity of each stage.47 A metagame is introduced through expandable skill trees, expeditions (a social feature), and limited-time event mines that offer unique rewards and challenges.47  
  Key Engagement Drivers: The inherent satisfaction of a simple, constantly rewarding core loop ("numbers go up"), a persistent sense of progress even during inactive periods, a "pay or wait" monetization model that offers choice, and frequent updates that introduce new content and features to maintain long-term interest.47

In many tycoon and management games, progression systems serve to deepen the strategic layer of resource allocation and optimization. Unlocks are not merely new items or abilities; they are new tools and systems that players must integrate to solve increasingly complex management puzzles. For example, in Two Point Hospital, unlocking a new advanced diagnostic room is essential for treating a newly introduced set of illnesses, which then requires adjustments to hospital layout, staff assignments, and patient flow.39 Similarly, in Anno 1800, advancing to a new citizen tier with more sophisticated needs forces players to expand their production chains, establish new trade routes, and optimize their existing infrastructure.35 The progression directly fuels and complicates the core management challenges of the game.

### **D. Key Long-Term Engagement Drivers Identified Across Titles**

Across these diverse simulation and tycoon games, several common drivers for long-term player engagement emerge:

* **Sense of Mastery and Competence:** Players are consistently engaged by opportunities to master complex systems, whether it's the intricate automation of Factorio, the economic optimization in Anno 1800, or the efficient hospital management in Two Point Hospital. Successfully overcoming difficult challenges, like completing all Community Center bundles in Stardew Valley, provides a strong sense of competence.
* **Autonomy and Player Agency:** The freedom to make meaningful choices is a powerful motivator. This includes decisions about R&D paths in Game Dev Tycoon, the open-ended pursuit of personal goals in Stardew Valley, or the creative design of cities and parks in Cities: Skylines and Planet Zoo.
* **Continuous Growth and Expansion:** Nearly all these titles feature systems that allow for continuous growth, whether it's unlocking new technologies and content, expanding physical territory or factory size (Factorio, Anno 1800, Cities: Skylines), or simply seeing numbers get bigger (Idle Miner Tycoon). This provides a constant sense of forward momentum.
* **Emergent Complexity and Narrative:** Games like RimWorld excel at creating unexpected challenges and unique stories that arise from the interaction of their complex systems. Even in less narrative-focused games, players often create their own stories of development and achievement, as seen in Stardew Valley or Cities: Skylines.
* **Clear Goals and Feedback Loops:** Well-defined objectives, such as the star ratings in Two Point Hospital or the rocket launch in Factorio, provide clear direction. Constant feedback on progress, whether through resource counters, research completion notices, or financial reports, keeps players informed and motivated.
* **Social Connection (where applicable):** While many of the analyzed games are primarily single-player, features like expeditions in Idle Miner Tycoon or the potential for sharing creations in games like Planet Zoo can add a social dimension that enhances engagement.

The following table offers a comparative overview of progression systems in several key simulation and tycoon games, highlighting their core mechanics, primary engagement drivers, and characteristics of their research or technology unlock systems.

**Table 2: Comparative Analysis of Progression Systems in Key Simulation/Tycoon Games**

| **Game Title** | **Core Progression Mechanics** | **Primary Engagement Drivers** | **Research/Tech Tree Characteristics** | **Relevant Sources** |
| --- | --- | --- | --- | --- |
| Factorio | Science pack automation, tech tree, resource scaling, base expansion | Problem-solving, optimization, automation, sense of scale, overcoming escalating challenges | Vast, interconnected, tiered science packs, infinite research options, unlocks new buildings/recipes/upgrades for efficiency & defense. | 28 |
| Stardew Valley | Skill leveling (farming, mining, etc.), tool upgrades, crafting, relationships, Community Center/JojaMart goals | Player agency, creative expression, collection, social connection, relaxation, clear goals | No traditional tech tree; progression via skill levels unlocking recipes, tool upgrades tied to resources/money. | 32 |
| Game Dev Tycoon | Office upgrades, R&D (genres, topics, engine features, hardware), staff specialization, market adaptation | Strategic decision-making, sense of building a company, achieving hit games, financial success | R&D lab unlocks new game development options, engine features, target audiences, and eventually hardware creation. | 41 |
| Cities: Skylines | Milestones (XP-based), Development Points for unlocking service features, map tile expansion | Creative city building, problem-solving (traffic, services), optimization, sense of scale | Development Tree for unlocking advanced buildings/features within services (e.g., transport types, advanced power plants). | 34 |
| Anno 1800 | Citizen tier advancement, production chains, island/regional expansion, trade routes, monument construction | Complex economic management, optimization, logistical puzzles, aesthetic building, sense of empire | Implied tech progression through citizen tiers unlocking new buildings/production; specific research may exist for items/ships, and expeditions/monuments provide unique unlocks/bonuses. | 35 |
| Two Point Hospital | Career mode star objectives, unlocking new illnesses/rooms/items/training, research system, staff development | Humorous theme, problem-solving (diagnosis/curing illnesses), layout optimization, meeting specific hospital objectives | Research Lab unlocks new rooms, machine upgrades, and advanced staff qualifications. | 39 |
| RimWorld | Research tree (Neolithic to Ultra-tech), storyteller AI-driven events, colony development goals (e.g., spaceship) | Emergent storytelling, survival challenges, base building, character attachment, high replayability | Extensive, tiered tech tree with prerequisites; unlocks buildings, gear, medical treatments, advanced manufacturing, and end-game goals. DLCs and mods expand it further. | 30 |
| Idle Miner Tycoon | Upgrading mine shafts, elevators, warehouses; unlocking new mines/continents; skill trees; event mines; expeditions | Simple core loop, constant sense of progress ("numbers go up"), collection, metagame depth via skills/events | Skill trees offer persistent upgrades to various aspects of the mining operation, chosen by the player. Event mines temporarily unlock unique progression paths. | 47 |

This comparative look reveals that while the specific mechanics vary widely, successful simulation and tycoon games consistently provide players with a strong sense of agency, clear paths for progression, meaningful rewards for their efforts, and opportunities to master complex and engaging systems.

## **V. Mastering the Art of Research Trees and Technology Unlocks**

Research trees and technology unlock systems are pivotal in many simulation and tycoon games, serving as primary drivers of player progression, strategic decision-making, and long-term engagement. Designing these systems effectively requires a blend of structural considerations, psychological insight, and careful integration with core gameplay.

### **A. Foundational Design Patterns for Research Trees**

The structure of a research tree dictates how players navigate technological advancement and influences the strategic choices available to them. Several common patterns exist, each with its own impact on gameplay.

* **Structuring for Impact: Types, Tiers, and Dependencies:**
  + **Linear Paths:** This is the simplest structure, where technologies are unlocked in a fixed sequence. While offering clear progression, it can limit player agency. Often used for straightforward upgrades of existing attributes or items (e.g., improving weapon damage through successive, singular research nodes).49
  + **Branching Paths:** The tree divides into multiple distinct paths, allowing players to specialize in different areas (e.g., economic, military, or cultural development in a strategy game). The key to effective branching is to ensure that each branch offers viable and strategically different options, avoiding "trap" choices or a single dominant path.7 The *Civilization* series is a classic example, where players choose which technologies to pursue, shaping their civilization's strengths.50
  + **Grid/Web/Network Structures:** In this pattern, unlocking a node typically grants access to adjacent nodes on a grid or web-like structure. This allows for more exploratory and less constrained progression, where players can "pathfind" through the tree. Examples include the License Board in *Final Fantasy XII* or the Sphere Grid in *Final Fantasy X*, where players navigate a board to unlock stat boosts and abilities.51 This can foster a sense of discovery as players uncover connections and plan their route to desired powerful nodes.
  + **Randomized or Semi-Randomized Unlocks:** Some games, like *Stellaris*, move away from a fully visible tree. Instead, players are offered a selection of researchable technologies from a larger, often weighted, pool.51 This promotes adaptability and replayability, as players cannot rely on a fixed optimal path. *Sword of the Stars* also utilized randomization in its tech system, with species having different likelihoods of discovering certain techs, adding to strategic diversity.51
  + **Tiers:** Technologies are often grouped into tiers or epochs, representing significant levels of advancement. Progressing to a new tier might require researching a certain number of technologies in the current tier or achieving specific game milestones.49 Tiers provide clear markers of progress and often unlock qualitatively different capabilities.
  + **Prerequisites and Dependencies:** Most non-linear tech trees rely on prerequisites, where one or more foundational technologies must be researched before more advanced ones become available.49 These dependencies create logical progression paths and can form strategic chokepoints, forcing players to make important decisions about their research priorities.
* **Visual Design and UI/UX Principles for Clarity and Engagement:** The presentation of a research tree is crucial for its usability and appeal.
  + **Clarity and Readability:** The UI must employ a clear visual hierarchy to indicate the importance of different nodes and the relationships between them. Logical flow, easily understandable icons, and concise text descriptions are paramount.52 As noted in discussions on game semiotics, players rely on established visual conventions, such as nodes lighting up to indicate availability or completion.54
  + **Feedback:** The interface should provide constant and clear feedback on research progress (e.g., progress bars, time-to-completion estimates), notification of completed research, and clear indication of newly available options or their effects.54
  + **Aesthetics and Thematic Cohesion:** The visual style of the research tree and its UI elements should be consistent with the game's overall art direction and narrative themes.55 For instance, the UI in *XCOM 2*, with its futuristic and slightly ominous aesthetic, reinforces the game's setting.55
  + **Minimizing Clutter and Information Overload:** Especially in games with extensive tech trees, the design must allow players to easily find relevant information and navigate the options without feeling overwhelmed.54 Techniques like zoomable interfaces, filters, or collapsible branches can be beneficial.

The visual language employed in a research tree can, in itself, become a powerful tool for player motivation and guidance. Beyond merely presenting options, a well-designed tree can subtly communicate the strategic importance of certain technologies, hint at potential synergies between different branches, and illustrate the "shape" of future possibilities. For example, using larger or more ornate nodes for "capstone" technologies, employing distinct visual styles for different tech categories, or designing connecting lines that visually converge on particularly impactful unlocks can naturally draw the player's attention and suggest these are significant goals. This form of visual storytelling can be more immediately engaging and intuitive than lengthy textual explanations, tapping into both Explorer motivations (discovering the tree's structure) and Achiever motivations (targeting visually prominent goals).

The following table summarizes effective design patterns for research trees, linking their structure to player agency and engagement outcomes:

**Table 3: Effective Design Patterns for Research Trees**

| **Pattern/Structure** | **Description** | **Impact on Player Agency & Engagement** | **Considerations** | **Example Games (from sources)** | **Relevant Sources** |
| --- | --- | --- | --- | --- | --- |
| Branching Paths | Tree divides into multiple paths, often leading to specialization. | High agency if branches are distinct & viable. Engagement from choosing a path aligned with playstyle. | Balance between branches, avoid "trap" choices or single optimal path. Clear communication of branch focus. | Civilization | 7 |
| Interlocking Vines | Multiple prerequisites for advanced techs; one tech can unlock multiple future paths. | Moderate to high agency, encourages long-term planning. Engagement from strategic foresight and managing dependencies. | Can be complex; requires clear UI to show dependencies. Risk of "analysis paralysis." | Civilization, Rise of Nations | 49 |
| Grid/Network | Unlocking a node reveals/allows access to adjacent nodes. | High agency in pathfinding. Engagement from exploration and discovery within the tree, tactical short-term choices. | Balance of node power, cost of traversal. Can feel less directed if not well-structured. | FFXII License Board | 51 |
| Tiered Progression | Technologies grouped into levels; unlocking a tier or specific techs within it is required to advance. | Provides clear milestones and sense of major advancement. Agency in choosing which techs within a tier to prioritize. | Pacing of tier unlocks, cost/benefit of advancing vs. broadening within a tier. | Most strategy games | 49 |
| Randomized Selection | Player chooses from a random subset of available technologies. | High adaptability required. Engagement from reacting to opportunities and variable game states, replayability. | RNG can be frustrating if key techs don't appear. Requires well-weighted probabilities. | Stellaris, Sword of the Stars | 51 |
| Meaningful Impact Unlocks | Each unlock provides a significant, noticeable change to gameplay (new units, abilities, systems). | High agency if choices lead to distinct gameplay shifts. Engagement from experiencing tangible power increases or new strategic options. | Requires careful balancing of impact vs. cost. Avoid too many minor/incremental "filler" unlocks. | Factorio (e.g., trains) | 1 |
| Breadth vs. Depth Focus | Tree design allows initial broad exploration followed by deep specialization, or forces early commitment. | Agency in strategic resource allocation for research. Engagement from mastering a chosen specialization or adapting a broad toolkit. | Align with game's resource flow and challenge curve. Optimal strategies for resource allocation suggest breadth first with low capacity, then focused depth with higher capacity. | (Conceptual) | 59 |

### **B. Cultivating Player Agency and Meaningful Choices**

For research trees and technology unlocks to be truly engaging, they must offer players a strong sense of agency and ensure that their choices are meaningful.

* **Ensuring Unlocks Have a Tangible Impact on Gameplay:** The most critical aspect is that unlocked technologies provide noticeable and useful benefits that players can directly feel and utilize in their gameplay.1 Whether it's a new unit type that counters a prevalent enemy, a building that significantly boosts resource production, an ability that opens up new tactical maneuvers, or a system that changes how core mechanics function, the impact should be clear. Avoid the "illusion of choice," where different research paths lead to functionally similar outcomes, or where some unlockables are patently suboptimal, rendering the choice moot.51 Choices should empower players to shape their experience according to their preferred playstyle and strategic vision.2
* **Balancing Breadth (Variety) vs. Depth (Specialization) in Tech Options:** Research indicates a trade-off when allocating finite resources (like research points or time) among many alternatives.59
  + **Breadth** involves allocating small amounts of resources to many different options, allowing for a superficial survey of possibilities. This is often optimal when resources are very limited (e.g., fewer than ~10 "samples" or research opportunities).59 In a game, this might translate to early-game research allowing players to dabble in several basic technologies from different fields.
  + **Depth** involves focusing significant resources on a few selected options to explore them thoroughly. This becomes more optimal as available resources increase. The "square root sampling law" suggests that with larger capacities, it's best to deeply sample a number of alternatives roughly equal to the square root of that capacity, ignoring the rest.59 A research tree can be designed to facilitate this by having broad, low-cost initial tiers that allow players to explore various foundational concepts, followed by more expensive, specialized branches that encourage commitment and in-depth development.
* **Incorporating Trade-offs and Opportunity Costs:** Meaningful choices often involve trade-offs.7 If choosing one technology makes another specific technology unavailable, significantly more expensive, or delays its acquisition, the decision carries more weight. These opportunity costs force players to think strategically about their long-term goals and the immediate benefits versus potential future limitations, making each research decision more impactful.

Ultimately, genuine player agency within a technology unlock system arises not merely from the quantity of choices available, but from the *strategic implications and lasting consequences* of those choices.26 A research tree that offers a few highly distinct, mutually impactful, and potentially exclusive technological paths can provide a far greater sense of agency than a sprawling tree filled with numerous minor, incremental upgrades that all players will eventually acquire. When a player's decision to invest in, for example, advanced cybernetic enhancements fundamentally alters their available strategies and locks them out of pursuing, say, potent psionic abilities (which offer an equally powerful but entirely different strategic approach), that choice is profoundly meaningful and player-driven.

### **C. Integrating Technology Unlocks with Core Gameplay Loops**

For technology unlocks to feel integral and impactful, they must be tightly woven into the game's core gameplay loops.21

* **Relevance to Core Activities:** Unlocked technologies should have immediate or clearly foreseeable applications within the primary activities and challenges the player faces.27 If a new technology doesn't help the player mine more efficiently, build better defenses, explore more effectively, or manage their tycoon empire with greater success, its value is diminished.
* **Feedback into Loops:** New technologies should enhance existing gameplay loops or enable entirely new ones. For example, in a resource management game, unlocking automated drones for resource collection directly improves the "Gather Resources" phase of the core loop, freeing up the player for other tasks.27 In an action game, unlocking a new weapon or ability might change how the player approaches the "Combat" loop.
* **Pacing Unlocks to Complement Player Skill and Game Challenges:** The introduction of new technologies should be paced to align with the player's growing skill and the evolving challenges presented by the game.1 New technologies should ideally become available when players encounter new problems that these technologies are designed to solve, or when they have mastered existing systems and are ready for increased complexity. Unlocking overly powerful technologies too early can trivialize challenges and reduce engagement, while unlocking them too late can make them feel irrelevant or like a missed opportunity.

The most impactful technology unlocks often do more than just provide a numerical advantage (e.g., +10% damage). They introduce a new *verb*, a new *system*, or a new fundamental *interaction* into the core gameplay loop, fundamentally altering how players engage with the game world.1 Consider the example of Factorio: unlocking trains is not merely about transporting resources faster (a quantitative improvement). It introduces an entirely new and complex system of logistics—laying tracks, designing stations, programming train schedules—which adds a new dimension to the core loop of building and managing the factory.28 This type of qualitative change to gameplay, where an unlock grants new ways to *act* upon the game world, tends to be far more memorable and engaging than simple statistical boosts. Such unlocks empower players with new tools for expression and problem-solving, deepening their mastery over the game's systems.

## **VI. Conclusion: Crafting a Blueprint for Sustained Player Engagement**

The design of player progression and engagement systems, particularly research trees and technology unlocks, is a multifaceted endeavor that lies at the heart of creating compelling and enduring experiences in simulation and tycoon games. A successful blueprint for these systems requires a synthesis of psychological understanding, robust design principles, and careful integration with core gameplay.

### **A. Synthesis of Key Findings**

This analysis has underscored the critical role of fundamental psychological motivations. **Self-Determination Theory** highlights the need to support player autonomy, competence, and relatedness.3 **Flow Theory** emphasizes the importance of balancing challenge and skill to foster deep immersion.10 **Goal-Setting Theory** points to the power of clear, challenging, and achievable objectives.13 Furthermore, acknowledging diverse player motivations, as suggested by **Bartle's Taxonomy**, allows for the creation of systems with broader appeal.18

Effective progression systems are characterized by clarity in their objectives and mechanics, appropriate pacing in the introduction of new content and challenges, consistent and meaningful feedback, and advancements that provide tangible benefits.1 Reward structures must carefully balance intrinsic and extrinsic motivators, ensuring that external rewards enhance, rather than undermine, the inherent enjoyment of play.3

The comparative analysis of successful simulation and tycoon games such as *Factorio*, *Stardew Valley*, *Game Dev Tycoon*, and *Anno 1800* reveals common threads for long-term engagement. These include providing opportunities for mastery over complex systems, granting significant player agency in decision-making, offering a sense of continuous growth and expansion, and allowing for emergent complexity or player-driven narratives.28

Specifically for research trees and technology unlocks, meaningfulness is achieved when they offer impactful choices that tangibly alter gameplay, integrate seamlessly with core loops, and are presented through clear and intuitive visual design.27 The structure of these trees—be it linear, branching, grid-based, or randomized—along with considerations of breadth versus depth, significantly shapes strategic possibilities and player experience.49

### **B. Actionable Recommendations for Designing Player Progression and Research Systems**

Based on the findings, the following recommendations can guide the development of highly engaging player progression and research systems:

1. **Prioritize Intrinsic Motivation:** Design core gameplay loops to be inherently enjoyable and satisfying. Use extrinsic rewards and progression milestones to support and enhance this intrinsic fun, not as a replacement for it. Frame rewards as acknowledgments of competence or enablers of further autonomous action.3
2. **Design for Diverse Motivations:** Recognize that players have varied motivations (Achievers, Explorers, Socializers, Killers, and those driven by autonomy, competence, relatedness). Offer a variety of progression paths, unlock types, and reward structures that cater to this diversity.18 A research tree, for example, can offer technological paths that lead to economic dominance (Achiever), new discoveries or areas (Explorer), collaborative tools (Socializer), or competitive advantages (Killer).
3. **Ensure Impactful Unlocks:** Technology and research unlocks must provide tangible, felt impacts on gameplay. These impacts should enhance player competence, provide new strategic options, or open up new ways to interact with the game world, thereby reinforcing player agency.1 Avoid "filler" unlocks that offer negligible benefits.
4. **Master Pacing and Challenge Curves:** Introduce new technologies, mechanics, and challenges at a rate that keeps players engaged without overwhelming them or causing boredom. Unlocks should ideally empower players to meet new, appropriately scaled challenges.22 Consider "anticipation loops" where visible future unlocks motivate current efforts.
5. **Emphasize Clarity and Intuitive Design:** Research trees and progression interfaces must be visually clear, thematically coherent with the game world, and intuitive to navigate. Players should easily understand their options, the prerequisites, the costs, and the benefits of their choices.52
6. **Foster Strategic Depth and Player Expression:** Design systems that allow for meaningful strategic choices with significant consequences. Trade-offs, opportunity costs, and branching paths that lead to distinct gameplay experiences empower players and allow for self-expression through their strategic decisions.7

The most enduring and beloved progression systems are often those that do more than just make the player incrementally stronger or provide them with more "stuff." They facilitate a transformation in the player's *relationship* with the game's core systems over time.1 Such systems guide the player on a journey of learning, adaptation, and eventual mastery, often allowing for unique and personal approaches to overcoming challenges. The progression path, whether a complex research tree or a series of skill-based unlocks, becomes the scaffold upon which players build their understanding, develop their strategies, and ultimately author their own unique story of achievement within the game world. This deepens engagement by transforming the game from a mere set of mechanics into a rich field for personal growth, strategic expression, and lasting satisfaction.

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