A Comparative Study on the Impact of Building Mechanics on Engagement in Idle Games

Bachelor Thesis Exposé

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1 Introduction

Idle games have received increasing attention since the emergence of the genre. A defining characteristic of idle games is the mechanic of waiting, which inherently reduces the player's direct involvement and diminishes their sense of agency. Intuitively, such decentered gameplay might be assumed to create a disengaging experience. However, the enduring and growing popularity of idle games suggests otherwise. These games, in contrasts with traditional, player-driven interaction models, offer a distinct engagement by emphasizing passive progression and minimal input.[1][2]

While many players who actively seek out idle games do so precisely because of their low-effort, passive nature, this study proposes that idle games can be designed to offer greater engagement and a deeper sense of meaning. The hypothesis guiding this research is that integrating building mechanics can enhance the player experience without compromising the fundamental qualities of idle gameplay.[3][4]

This study explores the potential of hybridizing idle game mechanics with elements of the building genre. The goal is to introduce a layer of creativity that increases player agency while preserving the lightweight, low-pressure progression typical of idle games. The prototype developed for this study is a gardening-themed idle game, in which players plant crops and trees that generate points over time. These points can be reinvested to expand the garden, thereby increasing the player's points-per-second. This feedback loop is designed not only to satisfy the common "make the number go up" motivation but also to foster a sense of ownership and intrinsic motivation as players shape and expand their personalized garden space.

This leads to the central research question and hypothesis of the study:

RQ1: Do building mechanics in idle games increase player engagement and long-term sense of meaningfulness?

H1: Incorporating building mechanics into idle games leads to increased player engagement and a greater sense of long-term meaningfulness.

2 Related Work

As the idle game genre is relatively new, there is still a limited body of scholarly work dedicated to its study. However, several papers and theses have emerged that explore various aspects of idle games. This growing interest can be attributed to the genre's counterintuitive appeal: although idle games often appear unengaging or overly simplistic in theory, they tend to be remarkably compelling in practice. In this study, the term idle game will be used interchangeably with incremental and clicker games, as the idle genre encompasses both.[5][6]

While there is no existing research that directly addresses the integration of building mechanics in idle games, several studies examine related design and engagement factors. One such example is Zhou's bachelor's thesis, *Designing for Compatible Narrative with Incremental Game Mechanics*[7], which demonstrates that narrative elements can be successfully integrated into incremental games. Zhou adopts an iterative development process, creating and testing three versions of a game prototype with participants, and uses questionnaires to evaluate narrative comprehension.

Similarly, Larsson's bachelor's thesis, *An Investigation of Compulsive Interactions and Mechanics in Incremental Idle Clickers*[8], investigates what makes idle games engaging. Participants played two versions of a custom idle game designed for the study. Larsson notes a key limitation in his research: the prototype lacked sufficient entertainment value, resulting in low player retention and reduced data quality.

In a related paper, *Exploring Engagement in Idle Game Design*[9], researchers conducted a semi-structured group study to measure and compare player engagement in idle and casual games. The study concluded that there is no statistically significant difference in engagement between the two genres. It also identified five key design elements that contribute to player engagement in idle games.

Another notable paper, *Busy Doing Nothing? What Do Players Do in Idle Games?*[10], used a survey distributed via Reddit to gather player data from a popular idle game. Despite the survey's length, it received 1972 responses. The findings suggest that players are highly engaged, with many attributing this to the social aspects of the game, such as sharing progress and strategies within the community and their friends.

In addition to academic research, there are also valuable contributions from the game industry that inform the design of idle games. For instance, *How Crossing Mechanics Became a Game Changer in Idle Games?*[11] discusses the increasing popularity of the genre, attributing part of its growth to hybrid designs that combine idle mechanics with features from other genres. This is particularly relevant to this study, which aims to explore a similar cross-genre integration. Another example is *Idle Playbook: Competitive Analysis*[12], a UX-focused study that analyzes four commercially successful idle games and aims to understand what made them successful.

3 Methodology

This study will be conducted using a comparative approach in which participants interact with two different versions of a prototype idle game: one that incorporates building mechanics and one that does not. Participants recruited for in-lab playtesting will engage with both versions in randomized order to control for potential order effects. Each session will be limited to a maximum of ten minutes per version.

Following each play session, participants will complete a standardized questionnaire that is based on the User Experience Questionnaire (UEQ-S)[13] and the User Engagement Scale (UES-SF)[14]. Supplementary questions will be included to assess participants' prior experience with idle games and their subjective comparison of the two game versions.

To measure long-term effects, an online version of the game will be made accessible to a broader participant pool. Hosting the game on the web will allow data collection from players who engage with the game in their own time. As the study is partially open-ended in this regard, the total number of participants and the volume of data collected will depend on interest and the perceived quality of the game.[1] Participants accessing the game online will be randomly assigned to play only one of the two versions.

In-game telemetry data will be collected automatically during each session to provide a quantitative data for analysis. The following gameplay metrics will be recorded:

- Playtime
- Idle time during active play
- Actions per minute
- Time of unlocking new content (progression)
- Return/Retention rate

Long-term effects will primarily be assessed through this quantitative data. While voluntary follow-up questionnaires will be offered to online participants, it cannot be assumed that players will engage with these surveys.

[1] This introduces some unpredictability, as participation levels will likely depend on the appeal and the quality of the game.

4 Timeline

Given that the quality of the quantative data highly depends on the games quality, it may be advisable to extend the development time of the game. The proposed timeline is fairly realistic in my opinion, however if increasing the development time window leads to a higher game quality it may be smart to do so.

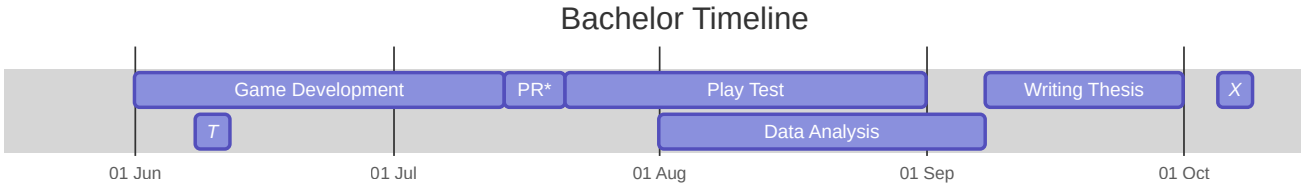

Figure 1: Timeline of the project. *PR* denotes *Participation Recruitment*, *T* denotes the 10th of July, *X* denotes the submission of the bachelor thesis.

References

[1] S. Fizek, "Interpassivity and the joy of delegated play in idle games," *Transactions of the Digital Games Research Association*, vol. 3, 06 2018.

[2] E. Morrell, "Now it's impersonal: On player decentered design," in *Proceedings of DiGRA 2022 Conference: Bringing Worlds Together*, (Tampere), DiGRA, 2022.

[3] I. Khaliq and B. Purkiss, "A study of interaction in idle games & perceptions on the definition of a game," in *2015 IEEE Games Entertainment Media Conference (GEM)*, pp. 1–6, 2015.

[4] S. Alharthi, P. Toups Dugas, O. Alsaedi, T. Tanenbaum, and J. Hammer, *The Pleasure of Playing Less: A Study of Incremental Games Through the Lens of Kittens*. 01 2018.

[5] S. A. Alharthi, O. Alsaedi, P. O. Toups Dugas, T. J. Tanenbaum, and J. Hammer, "Playing to wait: A taxonomy of idle games," in *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, CHI '18, (New York, NY, USA), p. 1–15, Association for Computing Machinery, 2018.

[6] K. Spiel, S. A. Alharthi, A. J.-l. Cen, J. Hammer, L. E. Nacke, P. O. Toups Dugas, and T. J. Tanenbaum, ""it started as a joke": On the design of idle games," in *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, CHI PLAY '19, (New York, NY, USA), p. 495–508, Association for Computing Machinery, 2019.

[7] S. Zhou, *Designing for compatible narrative with incremental game mechanics: actualizing storytelling based on incremental main loop*. Thesis, Northeastern University, Boston, Massachusetts, May 2021. Accepted: January 2021. Electronic, born digital thesis.

[8] C. Larsson, "An investigation of compulsive interactions and mechanics in incremental idle clickers," 2019.

[9] D. Hwang and E. F. Melcer, "Exploring engagement in idle game design," in *2024 IEEE Conference on Games (CoG)*, pp. 1–8, 2024.

[10] J. Cutting, D. Gundry, and P. Cairns, "Busy doing nothing? what do players do in idle games?," *International Journal of Human-Computer Studies*, vol. 122, pp. 133–144, 2019.

[11] "How crossing mechanics became a game changer in idle games?." `https://appquantum.com/news/october-2024/how-crossing-mechanics-became-a-game-changer-in-idle-games.html`. Accessed: 2025-05-30.

[12] "Idle playbook: Competitive analysis." `https://florenceso.com/understanding-why-top-games-has-high-retention-competitive-game-analysis`. Accessed: 2025-06-01.

[13] M. Schrepp, A. Hinderks, and J. Thomaschewski, "Design and evaluation of a short version of the user experience questionnaire (ueq-s)," *International Journal of Interactive Multimedia and Artificial Intelligence*, vol. 4, p. 103, 01 2017.

[14] H. L. O'Brien, P. Cairns, and M. Hall, "A practical approach to measuring user engagement with the refined user engagement scale (ues) and new ues short form," *International Journal of Human-Computer Studies*, vol. 112, pp. 28–39, 2018.