(RESEARCH)

MageMemo

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Abstract

This paper presents MageMemo, an innovative productivity tool that integrates gamification and fantasy storytelling to enhance user engagement in task management. Traditional productivity applications often struggle with sustaining long-term user interest, leading to decreased effectiveness over time. MageMemo addresses this challenge by creating a captivating experience where users earn achievements, level up, and uncover an unfolding narrative as they complete real-life tasks. By combining principles of Human-Computer Interaction (HCI) with a compelling fantasy theme, MageMemo offers a novel approach to improving productivity and motivation. Outlined is the design methodology, technical implementation, and evaluation metrics employed in the development of MageMemo, providing insights into its progression, and potential to revolutionize how people use task management applications.

Keywords: Human-Computer Interaction; Swift; Gamification; Fantasy; User-Centric Design; Positive Psychology

1. Introduction

With the proliferation of mobile devices, people have unprecedented access to tools designed to help them organize their lives and stay on top of their responsibilities. However, despite the availability of various productivity applications, many users struggle to find solutions that truly keep them engaged and motivated over time. The static, checklist-based approach of these tools can make task management feel like a monotonous chore, leading to a decline in user engagement and, eventually, abandonment of the app altogether. This thesis explores an innovative approach to solving this problem by combining elements of gamification and narrative storytelling within a productivity application. The project, MageMemo, aims to transform task management into an engaging and enjoyable experience, encouraging users to not only complete their tasks but to do so with sustained enthusiasm and motivation.

1.1 Problem Definition

Mobile task management is critical to modern personal and professional success; however, traditional productivity applications often fall short in maintaining long-term user engagement. Applications such as Todoist, Microsoft To-Do, and Google Keep are widely used for managing tasks, but users frequently lose motivation to continue using these apps due to their static, repetitive nature. Many of these tools focus purely on task completion without providing mechanisms to make the process enjoyable or engaging over prolonged periods of time. This project aims to answer the question: How can a productivity application retain long-term user engagement by leveraging gamification and narrative storytelling? The proposed solution, MageMemo, integrates fantasy storytelling and game mechanics into an iOS productivity application. MageMemo transforms task completion into a rewarding experience where users will level up and unlock an evolving story by staying productive

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My hypothesis for MageMemo is that integrating gamification and storytelling elements into a productivity app can significantly increase user engagement and motivation over traditional task management applications. By blending these elements with a user-friendly interface, MageMemo

provides a novel approach to task management that not only facilitates productivity but also enhances user enjoyment, thus promoting sustained use over time.

1.2 Motivation

The primary motivation behind MageMemo stems from my personal desire for a productivity tool that not only helps me manage tasks but also keeps me engaged and motivated over time. For years, I have struggled to find an application that strikes the right balance between functionality and enjoyment. Many existing productivity apps felt too rigid or uninspired, lacking the elements that would make me look forward to using them every day. The primary motivation behind MageMemo stems from my personal desire for a productivity tool that not only helps me manage tasks but also keeps me engaged and motivated over time. For years, I have struggled to find an application that strikes the right balance between functionality and enjoyment. Many existing productivity apps felt too rigid or uninspired, lacking the elements that would make me look forward to using them every day.

MageMemo caters to individuals who want more excitement and uniqueness from their productivity tools, those who crave an easy-to-use, narrative-driven experience that turns repetitive or stressful tasks into opportunities for growth and enjoyment. Life is already very stressful, and managing life within an application should not add to that burden. This application is for anyone who believes that productivity should be more than just ticking off checkboxes; it should be an adventure.

2. Background

The development of effective productivity applications has long been a focus of research within the fields of Human-Computer Interaction (HCI) and behavioral psychology. As modern life becomes increasingly fast-paced, the demand for tools that can help individuals manage their time and responsibilities efficiently has surged [2], [12]. Despite the increase of task management apps, achieving sustained user engagement remains a significant challenge. This difficulty has sparked interest in innovative approaches, such as gamification, which aim to enhance the user experience by making task management more engaging and rewarding [5], [8].

2.1 Current Understanding of the Problem

The challenge of maintaining user engagement with productivity applications is well-documented in the field of Human-Computer Interaction [5], [12]. Traditional productivity tools, such as the applications listed above, often prioritize task management efficiency over user experience. While these applications are effective at organizing tasks, they frequently struggle to sustain long-term user engagement or any engagement at all [2]. Many users find these tools to be monotonous and uninspiring, leading to a decline in usage over time [12].

Gamification has emerged as a promising solution to this problem. By integrating game-like elements into non-game contexts, gamification aims to make repetitive activities more engaging and enjoyable [9]. Several productivity apps, such as Habitica, SuperBetter, and Forest, have adopted gamification to varying degrees of success [10], [11]. Habitica transforms task completion into a role-playing game where users earn rewards and progress through levels [9], [10]. SuperBetter focuses on building resilience and well-being through quests and power-ups [10]. Forest encourages users to stay focused by growing virtual trees during work sessions [9]. Although these apps have demonstrated the potential of gamification to improve user engagement, they also face significant barriers in which MageMemo aims to address [9], [10], [11].

Some of these key barriers are personalization, usability, and exciting content [12]. Many gamified productivity apps adopt a one-size-fits-all approach for personalization, which may not cater to the diverse preferences and motivations of users [8]. This personalization approach has the user meet the application's requirements, rather than having the application meet the user where they are comfortable. This will be addressed with simple UI elements for productivity in MageMemo [1], [14]. For usability, balancing game elements with practical task management can be challenging [13]. Overly complex game mechanics may detract from the app's primary function, causing frustration rather than motivation [2], [12]. MageMemo addresses this by focusing on elements of gamification that promote productivity, and not adding gamification elements to the tasks themselves [10]. For exciting content, maintaining long-term user engagement requires a delicate balance of rewards and challenges to prevent users from losing interest [3]. To address

this, MageMemo will include a future road map of additional fantasy stories to unlock, keeping users engaged and productive [9], [11].

2.2 Literature Review

Research in HCI and gamification supports the strategic use of game elements to enhance user engagement and motivation [5], [8], [12]. Several key frameworks and studies provide a foundation for understanding how gamification can be effectively applied to productivity applications [10].

2.2.1 Gamification Theory and Practice: Yu-kai Chou's Octalysis Framework is a widely recognized model in the field of gamification, which identifies eight core drives behind user motivation: Epic Meaning & Calling, Development & Accomplishment, Empowerment of Creativity & Feedback, Ownership & Possession, Social Influence & Relatedness, Scarcity & Impatience, Unpredictability & Curiosity, and Loss & Avoidance [9]. Each of these drives contributes to creating engaging and effective gamified systems by appealing to fundamental human desires and behavioral patterns.

The Octalysis Framework is particularly relevant to the development of MageMemo as it provides a structured approach to integrating these drives into the app's design. For example, the Development & Accomplishment drive is represented through the app's XP system, where users gain experience points and level up by completing tasks. This not only rewards users for their productivity but also fosters a sense of progression and achievement. Additionally, the Empowerment of Creativity & Feedback drive is reflected in MageMemo's customizable task categories and personalized themes, allowing users to tailor the app to their preferences [9].

By incorporating these elements, MageMemo aims to sustain long-term user engagement by addressing multiple motivational factors simultaneously. Research has shown that applying such frameworks in productivity applications can lead to higher user retention and satisfaction, as users are more likely to continue using an app that meets their intrinsic motivational needs [9]. This alignment between user motivation and app design is critical for maintaining engagement over time, especially in productivity tools that traditionally struggle to keep users active.

2.2.2 Positive Psychology and Gamification: Jane McGonigal's work on gamification, particularly through the lens of positive psychology, explores how game design principles can be leveraged to improve mental health and well-being. In her book SuperBetter, McGonigal outlines how game-like experiences can help individuals achieve personal goals and overcome challenges by framing real-life tasks as quests that are both meaningful and rewarding [10]. This approach aligns with the principles of positive psychology, which emphasize strengths, resilience, and wellbeing.

MageMemo adopts these principles by integrating an achievement system that transforms routine tasks into gamified challenges. For example, completing a series of focus sessions may unlock new story chapters or achievements such as "Master of the Spell Book," providing users with a sense of accomplishment and purpose. This gamified approach is designed to enhance user motivation by making task completion more rewarding and enjoyable, similar to the quest structures in McGonigal's research [10].

Research indicates that incorporating elements of positive psychology in gamified systems can lead to improved emotional states and increased motivation to engage with tasks that might otherwise seem tedious or overwhelming [10]. For MageMemo, this means that users are more likely to remain engaged with the app over time, as the narrative elements and achievement system provide continuous positive reinforcement and emotional rewards. The integration of these principles into a productivity app not only improves user experience but also supports users in developing healthier work habits and mental resilience.

2.2.3 User-Centered Design: User-Centered Design (UCD) is a methodology that emphasizes the involvement of users throughout the development process to create products that are both usable and enjoyable [12]. This approach is particularly important in the context of gamified productivity applications, where user preferences and behaviors can vary widely.

MageMemo utilizes UCD principles by incorporating user feedback into every stage of development. Initial user surveys and interviews helped identify common frustrations with existing productivity tools, such as their lack of personalization and monotonous nature [12]. Based on this feedback, MageMemo was designed to offer a more engaging experience through customizable themes, a narrative-driven structure, and a flexible reward system.

Moreover, UCD principles guide the iterative design process of MageMemo, ensuring that each new feature or update is tested and refined based on real user interactions. For example, the implementation of the FocusTimerView and XPManager class was heavily influenced by user feedback, which highlighted the need for a simple yet effective way to track productivity and receive rewards [12]. This iterative approach not only improves the app's usability but also helps in creating a product that genuinely meets the needs and expectations of its users.

2.2.4 Research in HCI has demonstrated that applications developed with a strong focus on UCD tend to have higher user satisfaction and retention rates [12]. By continuously adapting to user feedback, MageMemo remains relevant and engaging, addressing the evolving needs of its user base and ensuring sustained engagement over time.

2.2.5 Pomodoro Technique: The Pomodoro Technique, developed by Francesco Cirillo, is a time management method that involves breaking down work into intervals, traditionally 25 minutes in length, separated by short breaks [3]. This technique is designed to improve focus and productivity by encouraging short, timed periods of work followed by a break. Studies have shown that this method can effectively reduce mental fatigue and increase sustained attention over prolonged periods of work [3]. MageMemo integrates the Pomodoro Technique through its custom FocusTimerView, allowing users to set focus sessions and receive rewards for completing each session [1]. By gamifying the traditional Pomodoro method, MageMemo enhances user engagement and helps users maintain productivity in an enjoyable and immersive way. This approach not only facilitates efficient task management but also aligns with the project's goal of transforming mundane activities into a rewarding experience [3], [10].

By addressing these barriers and leveraging insights from existing research, MageMemo aims to create a unique productivity application that not only manages tasks efficiently but also engages users through an immersive, fantasy-themed experience [8], [9], [12]. MageMemo considers this research by offering a narrative-driven approach that makes task management feel like an adventure, providing a more enjoyable and motivating alternative to conventional tools [9], [10].

3. Methodology

MageMemo seeks to transform the traditional productivity experience by integrating gamification and a compelling fantasy narrative. The methodology employed in the development of MageMemo focuses on creating an engaging environment where users are motivated to complete tasks through game-like elements and story progression based on the concepts of gamification research provided above [9], [10]. This section outlines the approach to designing, developing, and evaluating MageMemo, with a focus on key components, the development process, and evaluation methods.

The foundation of MageMemo's design process began with an in-depth exploration of the target audience's needs and preferences [12]. This involved conducting surveys and interviews with potential users to gather insights into their experiences with existing productivity tools and their expectations for a more engaging alternative. The research highlighted a common dissatisfaction with traditional task management apps, which were often perceived as monotonous and lacking motivational features [9], [10], [12].

Central to MageMemo's appeal is its rich fantasy narrative, which transforms real-life task management into an engaging storytelling experience [10]. The core of this narrative is the journey of a mage character, whose backstory and powers evolve as the user completes tasks and accumulates experience points. Each task completed by the user contributes to the mage's growth, unlocking new chapters of the mage's story [10]. This narrative integration is inspired by positive psychology principles, which suggest that framing tasks as part of a larger, meaningful quest can enhance motivation and engagement [10].

MageMemo also incorporates the Pomodoro Technique through its custom FocusTimerView, providing users with a structured method for managing their time effectively [3]. This method has been shown to improve focus and reduce burnout, making it a valuable tool in productivity applications [3]. By gamifying this technique and integrating it with the app's narrative elements, MageMemo offers a unique approach to task management that is both productive and enjoyable [3], [10]. By following this methodology, MageMemo aims to create an engaging and effective productivity tool that not only helps users manage their tasks but also provides a rewarding and immersive experience [9], [10], [12].

3.1 Results and Significance

The preliminary testing of MageMemo provided valuable insights into user behavior and preferences regarding productivity tools. The target population for this study consisted of education professionals and post-secondary students who expressed interest in improving their productivity with a mobile application. 73.3% of participants reported not using any productivity applications at the time of the study. Despite this, 86.6% of users believed that a productivity app could be beneficial in helping them manage tasks and stay organized. This indicates a significant gap between the perceived usefulness of such tools and their actual adoption among the majority of users

Table 1. User Preferences and Responses Related to MageMemo

	Currently Use Productivity App	Productivity App of Choice	Find MageMemo Beneficial	Heard of the term Gamification	More Likely to Use App with Gamification	Earning Achievements is Gratifying	Unlocking Story Increases Motivation	Gamification Increases Probability of Using App
Calendar	n/a	4	n/a	n/a	n/a	n/a	n/a	n/a
No Task Management	n/a	22	n/a	n/a	n/a	n/a	n/a	n/a
No	22	n/a	4	2	4	4	3	4
Reminders	n/a	4	n/a	n/a	n/a	n/a	n/a	n/a
Yes	8	n/a	26	28	26	26	27	26

The table provides a detailed overview of user preferences and responses from the study conducted on MageMemo. It captures the current use of productivity applications among participants, their likelihood of finding MageMemo beneficial, and their attitudes toward gamification elements. The data highlights that while many users do not currently use any productivity apps, the majority express a positive response towards the inclusion of gamification elements. This indicates a potential for MageMemo to attract users who are otherwise uninterested in conventional productivity tools.

The categories in the table include whether participants currently use a productivity app, which app they use, and their opinions on various aspects of MageMemo, such as the benefit of earning achievements and unlocking story elements. The responses are organized into the following columns:

1. Currently Use Productivity App: Identifies if the participant is using any productivity tool.
2. Productivity App of Choice: Lists specific apps being used, if applicable.
3. Find MageMemo Beneficial: Indicates the number of participants who find MageMemo beneficial.
4. Heard of the Term Gamification: Shows the count of participants aware of gamification.
5 More Likely to Use App with Gamification: Number of participants more likely to use the app with gamification elements.
6 Earning Achievements is Gratifying: Reflects the participants' opinions on the gratification of earning achievements.
7 Unlocking Story Increases Motivation: Indicates whether unlocking story elements motivates the participants.
8 Gamification Increases Probability of Using App: Shows how gamification affects the likelihood of app usage.

Even more compelling, the same 86.6% of participants indicated that the inclusion of gamification elements would increase their likelihood of using a productivity application. This underscores the importance of engaging, interactive features in motivating users to continue using productivity apps over prolonged periods of time.

During the testing phase of MageMemo, two distinct interfaces for managing reminders were evaluated by participants: a traditional list view and a more experimental "whiteboard" view. The list view presented tasks in a straightforward, linear format, while the whiteboard view featured customizable, color-coded tiles that users could arrange freely within a grid layout. Contrary to initial expectations, the traditional list view was overwhelmingly preferred, with 88% of participants finding it more intuitive and easier to use. Conversely, the same 88% of users reported that the whiteboard view was cumbersome and overly complex.

These findings suggest that users prioritize simplicity and direct access to their tasks over more visually elaborate interfaces. This preference underscores the importance of minimizing unnecessary UI elements that may obscure the core functionality of the application. The results indicate that users favor an interface that allows them to focus on their tasks with minimal distraction, emphasizing efficiency and clarity over additional customization options.

These findings highlight the potential of MageMemo to fill a void in the current market. By integrating gamification with traditional task management features, MageMemo addresses the needs of users who find existing productivity applications unappealing or inadequate. The app's unique approach has the potential to not only attract new users but also users who may not have tried a productivity app without the appeal of gamification elements.

3.2 Recommendations

The development and evaluation of MageMemo provide several key recommendations for the design and implementation of productivity applications that aim to enhance user engagement:

3.2.1 Integrate Gamification to Reinforce Positive Behaviors: Gamification elements, such as XP systems, levels, and achievements, should be designed to support and reinforce desired user behaviors without overshadowing the core functionality of the application. These elements should be intuitive, providing clear goals and rewards that align with the user's progress and productivity.

3.2.2 Utilize Narrative to Drive User Engagement: Embedding a dynamic and evolving narrative can transform task completion into a compelling experience. A well-crafted story that unfolds as users accomplish tasks not only provides intrinsic motivation but also creates a sense of continuity and purpose. Designers should consider incorporating narratives that resonate with their target audience and are closely tied to the app's objectives.

3.2.3 Adopt a User-Centric Design Approach: Regular user feedback and iterative design processes are crucial for developing applications that meet user needs and expectations. Conducting usability testing throughout the development lifecycle helps in refining the user experience and ensuring that the app remains engaging and relevant.

3.2.4 Balance Functionality with Engagment: While incorporating gamification and storytelling, it is essential to maintain a balance between engaging elements and the app's primary productivity functions. Overloading the app with too many features or complex mechanics can detract from its usability. A minimalist yet impactful design approach should be employed to ensure that the app remains both functional and enjoyable.

3.2.5 Focus on Accessibility and Personalization: Providing customizable themes, layouts, and interaction styles allows users to tailor the application to their preferences, making it more accessible and appealing. Ensuring that the app adheres to accessibility standards is equally important, as it broadens the potential user base and enhances overall user experience.

3.3 Implications

The integration of gamification and narrative in MageMemo supports existing theories in Human-Computer Interaction and positive psychology, which suggest that game elements and structured experiences can significantly enhance user motivation and engagement. MageMemo adds to this body of knowledge by demonstrating that such techniques can be effectively applied to productivity tools, offering a framework for future applications in this domain. Future research could explore the long-term impact of gamified productivity applications on user behaviour and task completion rates. Additionally, comparative studies between narrative-driven and traditional productivity tools could provide deeper insights into the specific elements that contribute to sustained user engagement and effectiveness within the narrative storytelling

3.4 Future Works

While MageMemo has achieved its initial goals, there are several avenues for future development and research based on user feedback. Future updates to MageMemo could include additional chapters and branching storylines that allow users to influence the direction of the narrative based on their productivity patterns. This could provide a more personalized and immersive experience.

Introducing new gamification elements, such as daily challenges, leaderboards, and community-based achievements, could further motivate users and foster a sense of community among app users. Fundamentally incorporating

compatibility with existing productivity tools and platforms, such as calendar and task management systems, could enhance the usability and appeal of MageMemo for a broader audience. By continually evolving and adapting to user needs, MageMemo can serve as a model for future productivity applications that aim to blend functionality with user engagement in innovative ways.

4. Presentation Of Work

This section presents the core features of MageMemo, showcasing the technical implementation and the user experience through selected chapters that illustrate key functionalities.

4.1 Pomodoro Timer Mechanism

The pomodoro timer in MageMemo is a central feature designed to help users manage their time effectively. It is implemented using a custom FocusTimerView and its associated FocusTimerViewModel, which tracks and displays the remaining time in a visually engaging manner. Users can set the duration of their focus sessions in hours, minutes, and seconds using a custom picker interface. The timer functionality is powered by a Timer object that updates every second. When the session ends, the app rewards the user with experience points, contributing to the progression of the story and unlocking new chapters. The visual representation of the timer includes a circular progress indicator that animates in real-time, providing immediate visual feedback to the user. The focus timer also integrates environmental themes, allowing users to select from different virtual landscapes, such as a forest, village, or mountains. This feature not only personalizes the user experience but also creates a calming atmosphere conducive to focus and productivity. These environement are carefully selected to match the story progression of the mage's narrative.

4.2 Narrative Integration and Story Progression

MageMemo's unique approach to productivity is enhanced by its narrative integration. Each completed focus session and task contributes to the mage character's story, which unfolds through a series of chapters; each chapter being unlocked as the user gains more XP. The ChapterListView and ChapterDetailView structures are used to present the narrative content.

The story is structured around the protagonist, Travis, a humble villager who discovers his latent magical abilities and embarks on a journey of self-discovery and growth. Each chapter is designed to correlate with user progress, providing a metaphorical representation of personal and productivity growth.

For example, in Chapter 1: The Mysterious Cottage, users are introduced to Travis as he stumbles upon a hidden cottage, setting the stage for his transformation. As users complete focus sessions and gain XP, they unlock Chapter 2: The Awakening, where Travis begins to harness his magical powers. This narrative structure not only motivates users to stay productive but also provides a rewarding and immersive experience as they follow Travis's journey. This story is meant to reflect the user's interaction with the MageMemo application, by "stumbling" upon the application, users will be able to learn the functions of the app and harness its abilities to their advantage. Just as our mage character Travis does in his narrative story.

4.3 Gamification and Achievement System

MageMemo incorporates a robust gamification system, managed by the XPManager class. Users earn XP for completing tasks and focus sessions, which contributes to their overall level and unlocks new chapters in the narrative. The level progression is carefully calibrated to maintain user motivation, with the XP requirements increasing at each level.

The application also features a comprehensive achievement system. For instance, users who complete 100 focus sessions unlock the "Master of the Spell Book" achievement, which is stored in the app's UserDefaults for persistence. This system provides additional goals and rewards, encouraging users to maintain consistent productivity and engagement with the app.

4.4 D. User Interface and User Expereince

MageMemo's user interface (UI) and user experience (UX) are designed to be both functional and visually appealing. The use of SwiftUI enables a dynamic and responsive interface that adapts to various device sizes and orientations. Key UI components, such as the pomodoro timer, narrative views, and achievement notifications, are seamlessly integrated to provide a cohesive experience.

The app's aesthetic is inspired by fantasy themes, with vibrant colors, mystical symbols, and a design that evokes the feel of magic. This design choice not only differentiates MageMemo from traditional productivity tools but also enhances user immersion and engagement.

4.5 E. User Feedback

Initial user feedback has been positive, with users highlighting the engaging narrative and the motivating gamification elements as key strengths. Based on this feedback, future improvements will focus on expanding the narrative content, adding more customization options for the user interface, adding additional Mage's and stories on a regularly scheduled basis, and incorporating additional gamification features, such as daily challenges.

5. Conclusion

MageMemo successfully integrates gamification and narrative storytelling into a productivity application, offering a novel approach to task management. The results from user testing indicate that 86.6% of participants would be more likely to use a productivity application with gamification elements, highlighting the potential of this approach to improve user engagement. The unique narrative structure and dynamic task management system were effective in maintaining user motivation and interest, addressing common challenges faced by traditional productivity tools.

Additionally, the evaluation of different interface designs revealed a strong user preference for simplicity. Specifically, 88% of participants found the traditional list view to be more intuitive and accessible compared to the gridbased tile view, which was perceived as overly complex.These findings suggest that while gamification and storytelling are valuable for enhancing engagement, they should be implemented in a way that does not compromise the clarity and usability of the user interface. By prioritizing ease of use and minimizing visual complexity, MageMemo effectively supports users in managing their tasks without unnecessary distractions. This balanced integration of innovative features with user-centered design principles underscores the potential of MageMemo to serve as an effective and engaging productivity tool.

6. Acknowledgments

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