

How do Minecraft players interact with modification content?

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This research project was conducted to determine how Minecraft players use modification content, which features are important to players, and how players learn to use new content. Most Minecraft players use Minecraft Forge mods to increase immersion, improve quality of life, and/or provide some utility. Players enjoy mods that have a clear sense of progression, useful or creative mechanics, and high levels of configurability. Most players learn new content by using mod-provided guides and utility mods such as JEI. Uncommon interactions, lack of discoverability, and lack of instruction can make it difficult to learn how to use a new mod.

1 INTRODUCTION

Minecraft is a popular video game that was first published in 2009. Over 139 million people play Minecraft on a monthly basis [1]. Mojang Studios, the company that develops Minecraft, allows users to add modifications, tools, or plugins to customize their experience [2]. However, Mojang Studios does not track or publish information about the use of modification content. This study was conducted to investigate preferences and design questions related to Minecraft mods.

2 OBJECTIVES

The main question that guided this study was: “How do Minecraft players interact with modification content?” After each stage of research, this question was refined and additional points were selected. The questions that guided the majority of the study were:

1. What modification content do players use and why?
2. What features in a Minecraft mod contribute to a good experience?
3. What features in a Minecraft mod contribute to a poor experience?
4. How do players learn to use new mods?

3 METHODOLOGY

First, a survey was designed to gain exploratory data about the use of Minecraft modification content. The survey presented several broad questions to determine which themes required further investigation.

Next, user interviews were conducted to gain more insight into the results from the survey. Interviews focused on a few themes from the survey and allowed participants to provide more detailed information.

Finally, usability tests were arranged to investigate how players learn to use unfamiliar content. Several mods were selected using criteria from prior stages of the study.

3.1 Participant Selection

Participants for each of the research methods were self-selected using social media (primarily online forums, Facebook, and Discord). Only players who were legal adults (over 18 years old)

were allowed to participate. All stages of the study were voluntary. As compensation for their time, participants in the usability study were offered a \$10 gift card or the equivalent in their local currency.

Many of the participants were recruited from Discord servers that specialize in Forge mods and Minecraft Java Edition. Some of the results may be skewed by the audience bias.

4 ANALYSIS

This section will analyze each of the core objectives of the study.

4.1 What modification content do players use and why?

According to a survey of over 60 participants, most players use Minecraft Java Edition with Forge or Fabric mods. Players choose mods that are “fun,” “unique,” or “useful” [3].

What is it about *new* modification content that makes you want to try it for the first time? Select all that apply.

63 responses

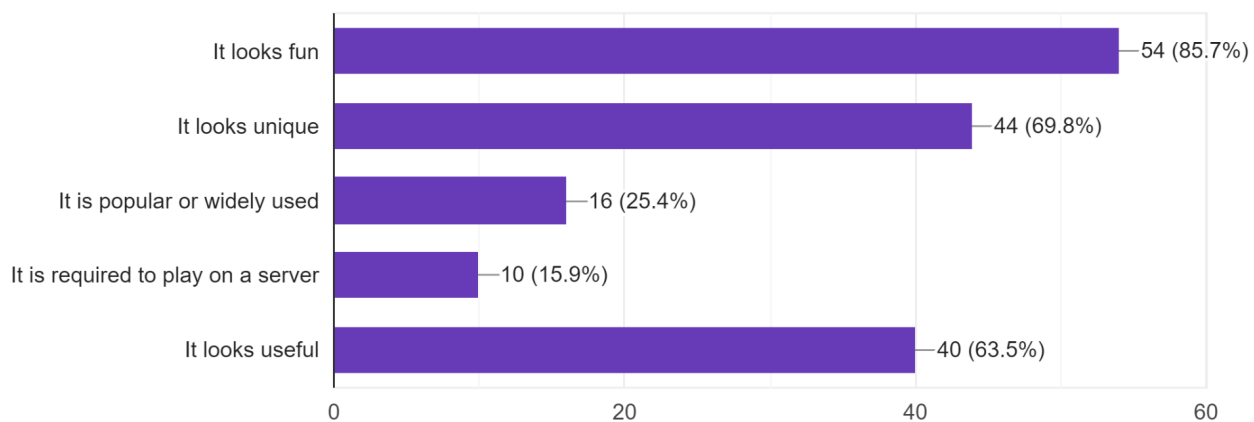


Figure 1: Survey responses to a question about choosing mods to play.

User interview questions were designed to determine what “fun,” “unique,” and “useful” mean to players. Interviews revealed that most players enjoy mods that provide immersion, convenience, or utility [4]. More detail is given about each of these categories below.

4.1.1 Immersion

Adventure mods and Technology mods were described as “useful,” “adventurous,” or “challenging.” Users particularly enjoy mods that “have many possibilities” [4]. Some players use shaders to further increase immersion.

4.1.2 Convenience

“Quality of life” mods such as JEI, mini-maps, plugins, and “tweak” mods allow players to spend less time worrying about unimportant aspects of the game. There is some overlap between categories; many technology mods include quality of life features.

4.1.3 Utility

Several players enjoy utility mods. These are mods that do not affect quality of life but provide some crucial functionality, such as server administration plugins or data packs.

4.2 What features in a Minecraft mod contribute to a good experience?

User interviews were used to gather information about how players define a “fun” mod. Most players enjoy mods that have clear progression, high potential, strong usability, or some other reason. More information about each of these points is given below.

4.2.1 Clear progression

Many players value mods that have a “clear way to progress” [4]. Several players enjoy mods that encourage exploration or that guide the player to complete well-defined goals. Mods can communicate progression to the player using advancements, tutorial books, custom GUIs, descriptive names for items, JEI integration, and more [3, 4, 5]. One player expressed the importance of having “something to guide you on how to approach all the content [of a mod]” [4].

4.2.2 Potential

Several players value mods that are “different” and have “many possibilities.” These types of mods often have unique features that allow the player to use content in a creative manner. One player described such mods as “challenging” but “satisfying” [4, 5].

4.2.3 Usability

The mod must be configurable. This point is intuitive given the context. The very core of Minecraft modding is the idea that players can customize their experience. Many players will stop using a mod if it cannot be customized [4].

Additionally, players enjoy mods that have intuitive features and mechanics. Several players appreciate good documentation, especially for plugins that would otherwise be impossible to use [4]. This point is closely related to “progression,” since many of the features used to direct the player serve as documentation.

Usability testing was done on the Create mod (by simibubi) to investigate its unique form of documentation. Create provides a visual tool called the “Ponder” menu to document its various components. Usability test participants described the Ponder menu as “extremely useful. It has visual demonstrations [and] it links to other concepts” [5]. This feature was found to greatly increase the usability of the Create mod [5].



Figure 2: The Create mod “Ponder” menu

4.2.4 Other

Several players enjoy mods that are designed with story-telling and multiplayer context in mind. Players often value mods that work well together (mods that actively support features from another mod). Some players value mods that “make sense” and fit into the Minecraft aesthetic [4]. Some players will only use mods that they view as “useful” [3, 4]. All of these preferences are secondary to the previously described concepts of progression, potential, and usability.

4.3 What features in a Minecraft mod contribute to a poor experience?

Survey questions were used to determine why players stop using any given mod. The following reasons were voted as the most frequent cause of mod disuse.

4.3.1 “It was not updated to a more recent version of Minecraft”

Up to 76% of players voted “Sometimes” or greater for this option.

On average, Minecraft Java Edition updates monthly with major updates once or twice a year. Mods that are not updated can become unusable. In one interview, a user explained that they “typically stop using mods after a year or two” [4] if the mod is not updated.

How often do you stop using modification content because: It was not updated to a more recent version of Minecraft.

63 responses

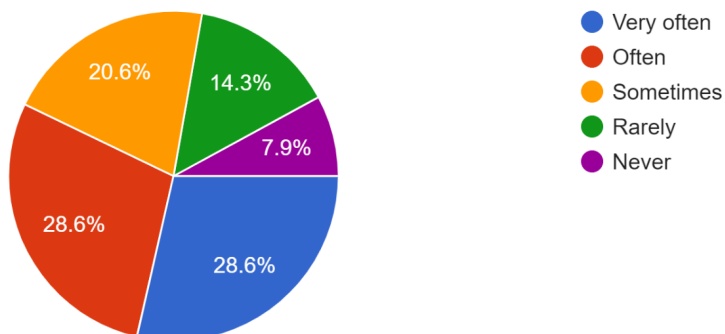


Figure 3: Survey response to a question about mods that are not updated.

4.3.2 "It was fun at first but became boring"

Up to 70% of players voted "Sometimes" or greater for this option. User interviews failed to provide insight into this point. It is hypothesized that players may become disinterested in mods due to preferences over time, long-term viability/usability of the mod, and trends in newly developed mods. Due to limited time, the study did not attempt to further investigate this issue.

4.3.3 "It was not fun"

Up to 70% of players voted "Sometimes" or greater for this option. To investigate how players define "fun," user interviews were conducted. It was determined that players dislike mods that have unclear usability, cannot be customized, or have compatibility problems. More information about each of these points is provided below.

How often do you stop using modification content because: It was not fun.

63 responses

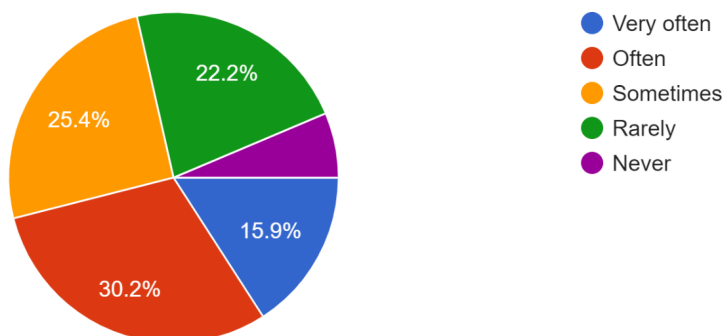


Figure 4: Survey response to a question about mods that are not fun.

4.3.3.a Unclear usability

Players do not enjoy mods that have unclear progression or have content that is not properly discoverable. While many players enjoy the challenge of using a complicated mod, they often dislike mods that are too complicated and time-consuming to learn. Players dislike mods that are not intuitive or rely too heavily on outside content. One player stated, “If a wiki is required to use a mod, I don’t use the mod” [4].

4.3.3.b Cannot be customized

The mod must be configurable. Many players will stop using a mod if it cannot be customized [4].

4.3.3.c Compatibility problems

Occasionally, a Minecraft mod is incompatible with another mod. Some players believe this happens more frequently among Forge mods than Fabric mods, but this study did not attempt to address that question.

Additionally, many players will stop using a mod that is not compatible with the most recent version of Minecraft [3, 4].

4.4 How do players learn to use new mods?

Initially, players indicated that they learn to use new mods via online guides (tutorials, blog posts, wikis, etc.). However, user interviews and usability tests suggest this is not always the case.

How do you usually learn how to use *new* modification content?

63 responses

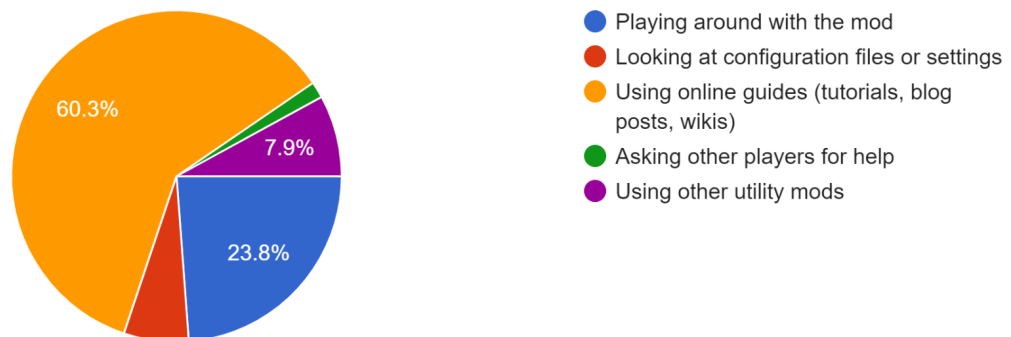


Figure 5: Responses to a survey question about how players learn to use mods.

User interviews were conducted to dive into this question. In these interviews, six out of eight participants indicated that they usually learn to use a new mod by installing it and “playing around.” This may include viewing items in the Creative menu or JEI, reading in-game guides, using blocks and items, and more.

How do you usually learn to use *new* modification content?

8 responses

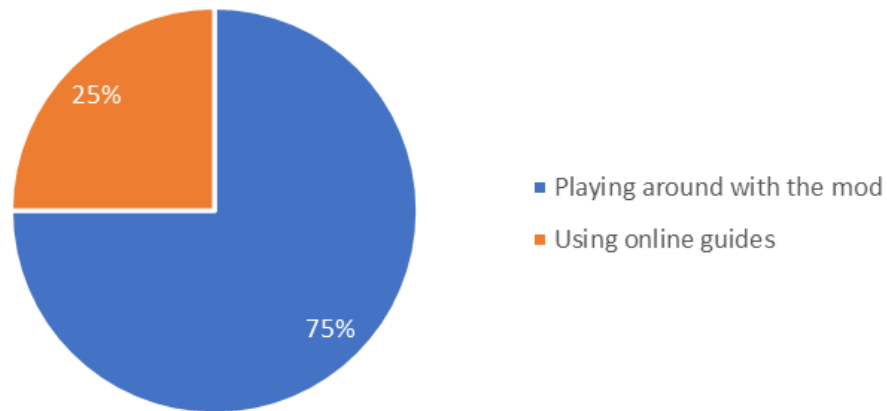


Figure 6: Responses to an interview question about how players learn to use mods.

To further investigate how players learn to use new mods, the study carried out usability tests.

4.4.1 Usability tests

Tests were designed that required players to learn to use new content. Four players responded to invitations to participate.

The following mods were chosen for testing based on their level of complexity and the manner in which they present new information:

1. *Botania* (by vazkii)
2. *Create* (by simibubi)
3. *Farming for Blockheads* (by BlayTheNinth)
4. *JEI* (by mezz)
5. *Mekanism* (by bradyaidanc, et. al)
6. *Switch-Bow* (by White_Draco)
7. *Timber Frames* (by RasaNovum, et. al)

Players primarily use the Creative menu, JEI, and mod-provided guides to learn new content. Some players use other learning techniques which are described below. The most accessible mods are those that provide multiple avenues to learn new content. Despite initial survey results, players rarely use Internet resources to learn how to use a mod [3, 5].

Players struggle with uncommon interactions such as holding shift while scrolling the mouse wheel. Some players struggle with primarily-text-based instructions. Some difficulties are caused by unclear item names or items with no tooltip instructions [5].

4.4.1.a The Creative menu and JEI

All of the players in the test relied heavily on JEI, especially the “mod search” function, to browse the content added by each mod. Players learn how to use a mod more quickly when they can see

all of its content in one place. Mods without a dedicated Creative menu tab were more difficult to learn [5].

JEI was also used to find crafting recipes or mod-specific recipes such as Botania's petal apothecary.

4.4.1.b Mod-provided guides

Several mods in the usability test provide some sort of help system. Mod-provided guides include tutorial books (such as Botania), interactive visual examples (such as Create), and text- or symbol-based GUIs. Some mods have few or no explicit instructions. Most players preferred to use a mod-provided guide when available. Some players became bored with text-based guides and did not read them fully [5].



Figure 7: A sample page from the Lexica Botania guide book

For example, Botania provides a guide book, JEI-compatible recipes, and tooltips to teach players how to use the mod. While players heavily relied on the guide book, they appreciated “having that information available in different ways” [5].

The “Ponder” guide in the Create mod was described as “extremely useful” [5]. This guide features highly visual demos with helpful animations and concise explanations. Players primarily referenced the Ponder guide when learning to use Create.

Mods with interactive GUIs usually included symbols or short text-based instructions to direct the player. Players quickly learn how to use GUIs that have easily recognizable symbols, such as arrows or Xs [5].

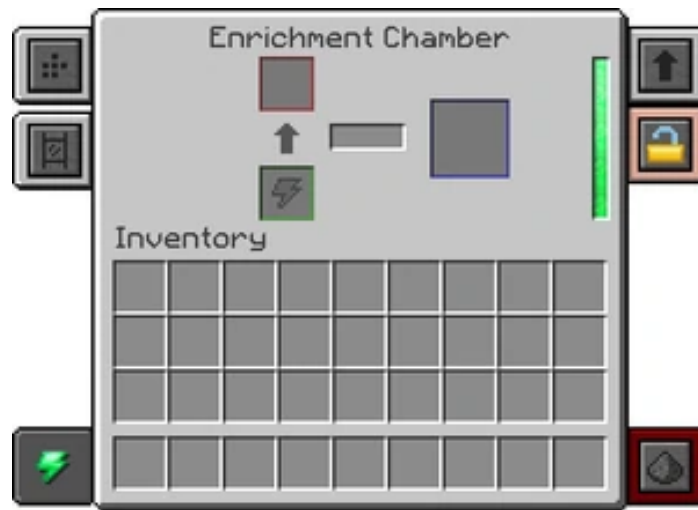


Figure 8: The Mekanism “Enrichment Chamber” GUI

4.4.1.c Internet resources

Most mods have a public wiki page on the Internet. During usability tests, it was found that most players use the Internet only as a last resort. Players prefer to learn using the Creative menu, JEI, and mod-provided guides [5].

4.4.1.d Other learning techniques

Several mods provide “tooltips” when looking at an item or block. These short descriptions frequently helped players to correctly use the item. When there was a complicated item with unclear usage, the first complaint by players was that it did not have a tooltip [5].

Multiple players used unexpected techniques to learn new content. When completing the task for the Switch-Bow mod, some players opened the Minecraft “Controls and Keybinds” menu to look for hotkey information [5].

4.4.1.e Difficulties

Uncommon interactions are often problematic. One task required players to hold the shift key and use the mouse scroll wheel simultaneously, which players described as “unintuitive” [5]. Another task required users to hold the shift key and right click, which was described as “clunky” [5]. Some players discovered the interaction by accident but most did not use the interaction until they read about it in the mod-provided “Help” GUI.

One mod did not have a dedicated tab in the Creative menu. This prevented some players from discovering the tools they needed to use the mod.

When completing a task for the Mekanism mod, players attempted to use a machine with a misleading name. Players are better able to find content when it is named in a way that aligns with the player’s expectations [5].

The Create mod presents new concepts that can be difficult to learn all at once. Players were better able to learn how to use the mod when content and examples were presented one at a time [5].

5 CONCLUSION

Most players use Minecraft Java Edition with Forge or Fabric mods [3]. Players choose mods that provide immersion, convenience, or utility [4]. Players enjoy mods that have a clear sense of progression, useful or creative mechanics, and high levels of configurability [4]. Players dislike mods that have unclear usability, cannot be customized, or have compatibility problems [3, 4]. Players use the Creative menu, JEI, and mod-provided guides to learn how to use a new mod [4, 5]. Uncommon interactions, lack of discoverability, and lack of instruction can make it difficult to learn how to use a new mod [4, 5].

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