Abstract. This thesis documents the process and development of a multiplayer modification to the triple-A Mount & Blade II: Bannerlord which aims to demonstrate the concept of adding persistent elements to the multiplayer experience. The end goal is to have a multiplayer experience with single player elements.

In an initial stage, research and documentation was analysed on existing games to analyse commonly used mechanics and systems that implement the relation between single-player mechanics to a multiplayer experience. Then a fully functional prototype was implemented on top of the existing game to create a brand new game mode, where the players were able to create their own personal army and test them out against other players. The mod had short comings, but was successful in creating an enjoyable multiplayer experience with persistent elements. Users rated the mod rather high in terms of usability and enjoyment; it did however lack a good retaining factor for newer players which means there is still future work that could be done for the development and improvement of the mod.

Keywords: Mount & Blade II: Bannerlord · Gameplay Progression · Meta-Game Progression · Multiplayer

1 Introduction

Persistent elements are a common approach to most games to add a sense of constant progression outside of the main game or main loop. Given its rising popularity we will first define on a larger scope what progression could mean on a broader spectrum in the video-game industry. Progression in its raw definition means “the process of developing gradually from one stage or state to another”[2]. In the context of a game it could represent everything that suffers a change over a period of time (or unit of time period represented in game such as a turn).

“Persistent progression” is often denominated meta-game progression, and represents the progression that carries over from each playthrough (usually with persistent elements such as unlockable perks, new items or new game mechanics).
A game genre that commonly uses meta-game progression are rogue-like games, like Binding of Isaac[4] or Dead Cells[5], where each time the player plays a game round he could unlock new features that will be available on the following playthroughs.

1.1 Motivation

A lot of multiplayer games rely on the same kind of challenges repeated over and over, we believe there are ways to improve a multiplayer experience that help make this cycle more enjoyable and less repetitive. We want to test if adding a good progression system into the multiplayer experience will improve its overall experience and improve its overall longevity. This will prove as a challenge as adding a progression system can often lead to the feeling of being overcompensated and meaningless, in the sense that the players feel it brings nothing to the table and shouldn’t even be implemented.

So we want to evaluate whether adding such a system to a multiplayer experience would attract players to play and if such players would enjoy the game mode. We had to decide where and how such a system would be implemented and Bannerlord stood out as a potential candidate for such concept. The game has a fairly strong and developed progression system in the single-player campaign, a game mode of the game, and we feel this system could be used and adapted to complement the game’s multiplayer experience to create a new and fun game mode that players will enjoy and want to play more.

1.2 The Problem

At the moment of writing this thesis, October 27th, 2021, Bannerlord hasn’t got any sort of similar game mode that combines persistent elements to a multiplayer experience. The current implemented system (among other game modes) is a team deathmatch game in which six players battle another six. Each player can select a type of troop squad which he can then command - infantry, ranged units or cavalry. The goal of the battle is to occupy specified tactical points, and whoever owns most points will drain away the enemy’s score; when a team’s score reaches zero the battle is over and the team with the remaining score wins the battle. Battles last everywhere between 15 and 45 minutes.

Whilst the game mode is fun, each battle is a unique event and has no further impact outside of the battle itself. We feel that the experience could be improved if the player had something to do outside of the battle that would impact future battles in one way or another.

With this thesis we aim to evaluate if the new multiplayer mode created a new, fun and enjoyable experience overall and how adding persistent elements contributed to it. Currently there is no lasting relation by the player to the troops he commands, given the temporary characteristics of the game mode. Is a persistent and evolving army a fun mechanic for the game?
1.3 Goals

The main goal is to understand how a meta-game progression system could be designed and implemented into a game such as *Bannerlord* and the impact on the overall experience of the game. We will also try to make a link between common meta-game progression systems in single-player and how they could be implemented in a multiplayer game.

As mentioned before, we want to test the concept in the context of the game *Bannerlord* and implement a proof of concept capable of simulating a progression system that achieves persistent element progression in a multiplayer experience. The *Bannerlord* single-player system already implements a very realistic personal army experience, which means there is a lot of concepts that can be re-used and added on the multiplayer progression system.

2 Mount and Blade II: Bannerlord

*Mount and Blade II: Bannerlord* is an early access game which focuses on early medieval warfare, developed by *TaleWorlds Entertainment*. It’s a strategy action role-playing game that envisions recreating the life of a commander in the medieval era. It was launched on March 30th, 2020 and is a prequel to the game *Mount and Blade Warband*, also developed by *TaleWorlds Entertainment*.

The single player experience is based around an avatar created by the player which has the ability to command a small party of troops. The core game loop relies on fighting NPC lead parties belonging to factions present in the game. To improve the party’s capabilities, the player recruits new troops, upgrades current ones and levels up his character so he can fight harder and better equipped parties.

The multiplayer experience currently consists in four game modes: Siege, Team Deathmatch, Skirmish and Captain. The player can select a troop class for his character beforehand and customize his character.

- **Siege:** The siege mode is a 60 vs 60 players game where an attacking team tries to capture a castle from the defending team. The goal of the mode is to capture all the points of the castle until one of the team’s score, referred to as “Morale”, runs out (the team that controls most points drains away the other’s score).
- **Team Deathmatch:** Similar to the siege mode, team deathmatch is a massive arena game where players battle in a medieval scenario; the only main difference to the siege mode is that there are no attackers or defenders, it uses the similar point capture of the game and the team that loses is the one that loses all its “morale” or the team with least morale when the time runs out.
- **Skirmish:** Skirmish is really similar to the team deathmatch but is smaller in scale, it’s only between 12 players, 6 vs 6 and they battle in a smaller map.
– **Captain:** This mode is the closest to the original Single-player experience where 2 teams fight a battle of 6 vs 6, where each player controls his own small army. The amount of troops are determined by the strength of the type of troops selected, and the player’s squad type can be specified by the player at the start of the battle and can be one of three types: ranged units, infantry and cavalry.

3 Conceptual Model - Overview

![Fig. 1: Relation between the in-game loop and the meta-game loop](image)

The mod developed over the course of this project is composed in its essence by two forms of gameplay progression which intertwine with player progression. These two systems are the the **in-game loop** and the **meta-game loop** of the mod. In addition an elo rating system was implemented that serves as a metric for the player progression.

The in-game loop essentially consists of a combat system that has a character controlled by the player and an army for him to control, the player will fight the battle and either win or lose based on the performance in battle. After each battle the player will enter the meta-game loop. The character that the player controls and his army are evolving features, and this evolution takes place in this loop. It’s also here that the player will select his next opponent and enter the in-game loop again. The player can challenge either available equivalent opponents (in ranking and / or army strength) or select from the top 20 players in the world, if he feels like he can match them.
Unlike the original game, there is no concept of borders or territory in this mod, the player goes from the main interface to the battle where he will find himself in a plain with his army close by and with the enemy army further ahead. After the battle is won he goes straight back into the main interface where he can make his decisions. So a constant cycle is made between the in-game loop and the meta-game loop. And alongside these loops will be the constant presence of the player progression. The player will get better at fighting battles and better at managing his army over time, so as the complexity of the game increases so should the overall capability of the player.

4 Development and Implementation - Overall Structure

Fig. 2: Overall Mod Structure Diagram; Legend: Yellow - Local Systems, Green - Data Shared, Blue - Remote Systems

The essential structure of the mod, as can be observed in the diagram of figure 2, is composed in the following way:

- **The main interface:** A central hub of operations where the player makes most of the management of his army;
- **The battles:** The core loop of the game, where the player battles against the enemy armies;
- **The progression:** Every part of the management made by the player out of battle;
- **The player information:** The crucial information about the player and his armies, equipment and others, required for other players to challenge the player;
- **The server connection:** The system in charge of communicating with every player system and sharing the required information with each player;
– **The server database:** The server storage service that keeps every player’s information and battle history.

5 **Tests and Feedback**

The mod *General Lords* was launched in August 26th for public testing in the site *Nexus Mods* [1], a popular modding site that hosts mods from several games. The choice of site was made for two reasons: *Bannerlord* being in early access still does not have access to the *Steam Workshop* (the *Steam*’s modding platform) and *Nexus Mods* is currently one of the most active modding sites available.

5.1 **Dissemination and Community**

To better propagate the mod’s visibility, posts were made in the *Bannerlord’s Reddit pages* and the *Bannerlord Community Forum*, giving a brief description of the mod and incentivising the players to try and to join our community in a *Discord* server created by me and 4 other colleagues that were also developing a mod for *Bannerlord*. These posts had little impact and garnered less than 10 upvotes each.

5.2 **Mod Reception**

Despite a small overall userbase we can say the mod had success in some key areas. Over the course of a month it had a steady growth of new players and a few players remained playing the game for quite a while. The mod was also featured in the trending section, and the most downloaded section of the *Nexus Mods*’ page.

After the testing period of 30 days, the overall download ratio was at around 325 unique downloads and 510 total downloads (unique downloads representing the number of downloads excluding repeated ones from the same player, which essentially represents the total number of players that downloaded the mod). It had over 15000 views and 16 endorsements (upvote feature of the *Nexus Mods*). And as of October 27th, 2021, the unique downloads stabilized at 382 and the total downloads at 563. The total number of views reached 18526 and 17 total endorsements.

5.3 **Automatic Data Collection**

During the open testing period, like mentioned, the server allowed us to store plenty of information regarding the player’s behaviours, although with some limitations. This allows us to analyse the overall population of the mod and analyse the overall engagement based on the time spent playing the game.

Over the course of the 30 days recorded, the player base grew consistently between 5-15 players each day without major spikes or plateaus, as seen in figure 3. This reached the total amount of 289 users.
In figure 4 we can observe that there were some players that seemed to enjoy the game, some investing over 30 hours in the game in the span of 30 days.
In figure 5 we can see the overall player attendance over the course of the testing period. As we can see over 80% of the players didn’t login again after the first day, 10% seemed to give the mod more thought as they played again a second day and then 5% of the players clearly enjoyed the mod as they played for more than five days.

We can conclude that we couldn’t captivate most players enough to play the mod more than once. But the mod shows clear potential as some players became captivated enough to play recurrently and invest multiple hours into the game.

5.4 Open Survey and Controlled Tests

![Usability and Enjoyment Boxplots](image)

Fig. 6: Online Survey Enjoyment and Usability Boxplots

We wanted to evaluate the overall usability and enjoyment of the mod so we, in addition to releasing it to the public and asking for feedback, performed a series of controlled tests with newer participants and evaluate their adaptation to the game mode. We then made available surveys for both the testers from Nexus Mods and the participants of the controlled tests.

The survey was mostly composed of statements with a seven point Likert Scale to measure the level of agreement the participants felt when reading them, from strongly disagree to strongly agree. The statements were based on the “Game User Experience Satisfaction Scale” by Mikki Phan, Joseph R. Keebler and Barbara S. Chaparro [3]. These statements were divided in two main sections, the usability and enjoyment sections.

For the usability section, we wanted to measure if the mod was easy to pick up, if the interface developed was intuitive and easy to understand, if the players could understand what to do without requiring lengthy information or tutorials, and if the players understood the information given.
For the enjoyment section, we wanted to evaluate if the mod was fun to play, if the in-game loop (challenging new players to battle) was fun, if the meta-game loop (upgrading the army after battle and if having an army evolving as an addition were interesting) was fun. If the player felt proud when he won and desired to try again when he lost.

After applying the Cronbach’s Alpha test to each group of questions we got the boxplot figures for the open test survey, figure 6, and for the control test survey, figure 7. As can be seen, both groups rated with high marks, either in the usability as in the enjoyment section. Which means that our active set of users both understood and enjoyed the mod.

5.5 Results Conclusion

From the overall analysis we can have a mixed conclusion of the mod. On one side, the reaction to the mod both in the open survey and the controlled tests survey was overwhelmingly positive and people claimed to both understand the mod and enjoy it. However, on the other side, the conversion rate, be it from page viewers to testing players and from testing players to regular players, was rather small.

So the for the positive results we have: a reasonable percentage of players invested multiple days and a lot of hours into the game, as well as answered the survey with fairly positive remarks and constructive critics and suggestions.

However we need to address some of the mod’s short comings. One of them being the player’s turnover after the first day. If the mod’s implementation by itself isn’t the sole factor, as some players clearly enjoyed the mod enough to play far beyond 30 hours, then most likely either the hook for new players is missing or the progression is too slow for some new players to keep them entertained enough for them to play again in the next day.
6 Conclusion

During these months a prototype was developed that successively implemented these features and managed to form a full fledged prototype, capable of being freely used by any person that desired to test the mod. From the feedback received, as well as analysis to the data obtained, we can consider this project succeeded in its original goal of creating an enjoyable multiplayer experience with persistent elements, but given the failure to win over most users that decided to download the mod we can say that the project could certainly use a lot of improvement.

Players really enjoyed the concept and even newer players that openly said the game wasn’t their style, had fun playing the game and would like to try again. In addition, most of the recurrent players of the mod enjoyed the mod not only for what it was, but also for what it could be if the project were to be further developed. A lot of suggestions were given to further expand the mod, such as siege battles, having some NPC missions that allowed the player to do side missions to progress without requiring challenging new players, a form of CO-OP, were you could fight battles of 2 versus 2 or more, etc. In essence, players saw much potential in the concept which is essential if this project were to be continued.

We also need to address some short comings. The mod seems to lack a good hook factor as much of the players don’t stick to the mod after the first day.

One of the biggest complaints were relative to the wounded troop system, as the players feel it hinders them too much of playing the game. To help attenuate this problem and keep players more engaged on their first day, a good possible solution is to give a “new player” protection that stops troops from being wounded for the first 1 to 2 days.
References


Game References

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