

PROSUMPTION AND GAMEPLAY EXPERIENCE: GAMER PERCEPTION REGARDING STARDEW VALLEY MODS

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Abstract

Purpose – Video game developers/studios who create successful game titles/franchises rely on active fan communities/fandom to increase the shelf life/commercial value of their games. Prosumption is an accepted practice in the video gaming industry, where users become value co-creators through modding and share their original content with other users/gamers without any commercial intent. Modding provides a platform for users to be recognized as content creators and provides gratification to both modders and gamers. In this content, this study seeks to evaluate the types of gratification and immersion derived by users of various mods created for Stardew Valley, a farming simulator role playing game.

Design/Methodology/approach – This research classifies 50 popular mods of Stardew Valley into specific categories based on utility through the framework proposed by Hackman & Björkqvist. The popularity of mods is evaluated based on average downloads and endorsements by users available on NexusMods, a mod sharing platform. The study then evaluates the mods based on types of gratification generated using the ‘UGT’ framework proposed by Bakar, Bolong, Bidin, & Mailin and sources of immersion based on the ‘SCI’ framework conceptualized by Ermi & Mayra.

Findings – The perceived gratification derived by potential users of mods based on downloads and gratification derived by actual users based on endorsements reveals differences in the types of gratification derived between various categories of mods. Gamers preferences reveal that ‘Providing custom help’ mods and ‘Cheats’ mods are the most popular categories and provide content gratification and process gratification respectively. Technological gratification is the primary motive for downloading mods among users, while Social gratification is the key motive derived based on endorsements provided by existing mod users.

Research limitations/implications – The study relies on secondary data published on NexusMods for evaluating gamer preferences and purely descriptive in nature. Primary data collected from mod users could provide a more accurate understanding regarding types of immersion and sources of gratification.

Practical implications – The findings reveal that mod users of Stardew Valley derive social gratification through the game and prefer mods that enhance imaginative immersion. The

developer/publisher of Stardew Valley could engage with popular mod creators to enhance the commercial value of the game through downloadable content packs (DLCs) or provide patches (free updates/improvements) to the game. This could in turn increase the shelf life of Stardew Valley and allow the game developer/publisher to manage in-game content and game experience.

Originality/value – This study integrates the UGT & SCI framework in the context of prosumption and provides a new classification framework for video game mods.

Keywords - Prosumer, Prosumption, Video games, Mods, Game Experience, Gameplay experience, Uses and Gratification, UGT.

Paper type – Research Paper

1. Introduction

Prosumption is a phenomenon that has gained traction since the advent of advanced networking technologies and applications and supports a process of value co-creation (Pralhad & Ramaswamy, 2004) through collaborative online communities. Prosumption is prevalent across digital media, especially in video games. Video game modding is a form of prosumption that allows end users/gamers develop their own custom features/alter existing features of a game in the form of exclusive packages or mods. These mods are uploaded on select websites for usage by other gamers. This study considers the various mods created by prosumers who play Stardew Valley.

Stardew Valley is a farm life simulator/role playing game developed by Eric Barone (ConcernedApe) in 2016 and has sold over 10 million copies worldwide. The game centres around a farm the player's in-game character acquires after his grandfather's demise. The activities that can be pursued within the game include farming, foraging, mining, combat and fishing. The game is set in the fictional world of Pelican town and features around 41 villagers (Non-Playable Characters/NPCs) with whom the player's character can interact to acquire resources, complete quests and form relationships (platonic or romantic) (Failde, 2020). The game's success is attributed to its simplicity, immersive game environment, unique interactions with various NPCs and its robust multiplayer mode (Sanchez, 2018).

2. Prosumption and Gaming Experience

2.1 Prosumption

The rise of the 'prosumer' was first coined by Alvin Toffler, who highlighted the contribution of the 'invisible economy' who produced goods for personal consumption prior to the industrial revolution. Post industrialization, this practice was abandoned in advanced economies as populations who were previously reliant on their homesteads migrated to the cities seeking employment in emerging industries/factories. Industrialization facilitated the willingness of consumers to forego producing certain goods/services themselves/subsistence and seek more economic/cheaper alternatives made by specialized producers/service providers (Ricardo, 1817), enhancing the cycle of production and consumption. This economic shift was highlighted by Karl

Marx in his ‘Theory of Profit’, where he emphasized the reliance on technological advancement to extract the value of surplus labour from the proletariat (working class who have no control over the means/factors of production) by the bourgeois (social class that controls capital and the means of production) (Moseley, 2001). This phenomenon of technological control/threat over employees is employed by corporations in the present day to standardize operations and the quality of goods/services provided to consumers. This rigor extends to the consumer, which prioritizes efficiency over experience (Ritzer, 2000). Furthermore, Marx in his book ‘Das Kapital’ (Marx, 1887) emphasized that by participating in the mass production and consumption cycle of capitalism, the worth of an individual’s labour would be determined by market forces and the relationship between individuals would essentially be reduced to the price of commodities, as their ‘alienated’ labour would also be reduced to a commodity. Furthermore, he emphasized though it would appear that the prices of commodities, wages were determined by market forces, the hidden hand of the bourgeois would extract the value of surplus labour, resulting in a widening an economic and social divide with the proletariat (McNall, 1990). Economists such as Galbraith postulated that the rising economic affluence drives consumption, which is artificially generated by corporations whose production activities are dependent on identifying/creating new wants among consumers through means such as advertising and promotional activities. These wants are satisfied through the provision of goods/services to the consumer and determine the level of industrial output (Galbraith, 1952). This school of thought suggests that consumption is influenced and determined by producers, which aligns with Marx’s belief regarding the subversive influence of the producer/capital rich class. Other schools of thought argue that organized consumption is the inevitable outcome of the induction of labour into the industrial workforce and is an extension of productive forces of an industrialized economy (Baudrillard, 1998).

Contrary to Marx’s presumptions, advances in technology facilitated the rise of the ‘Do it Yourself’ (DIY) generation, blurring the lines between production and consumption. Toffler predicted the integration of consumers into the ideation and production of widely consumed goods and services, where technology will facilitate production of customized goods for personal consumption (Toffler, 1980). Customization allows producers/service providers to create meaningful consumer experiences and differentiation of products/services in the minds of consumers. Experiences are unique as they are based on the subjective perception of the individual consumers and tend to linger in the minds of the consumer, as they cannot be exchanged and can be incorporated into the consumer’s identity (Carter & Gilovich, 2009; 2011). This ‘experience economy’ has created a paradigm shift in assessing the role of the consumer, as each act of consumption results in the production of unique experiences (Ritzer, Dean, & Jurgenson, 2011). Companies that fail to deliver value/transformational experiences as a part of customization, will lead to the commoditization of goods and services (Pine & Gilmore, 2011).

However, the prevalence of prosumerism can be constrained by special interest groups (corporations, professional bodies) who will be keen to maintain the status quo, which involves continued consumption of standardized goods and services/commoditization, as opposed self-

production and consumption (McKnight, 1977). Furthermore, the rise in disposable income and a desire for easy living will keep this status quo in place and prosumerism may be prevalent in certain aspect of an individual's life, but total independence/self-reliance is impossible in modern day society (Kotler, 1986).

2.2 Classification of Prosumers

Prosumers can be broadly classified as avid hobbyists (producers in two domains, one being the primary occupation and other being a hobby/area of interest) and archprosumer (individuals who live simple lives, shunning mass-produced products and focusing on sustainable production and consumption by themselves) (Kotler, 1986). Recent studies classify prosumers into five categories namely – Do it yourself (DIY) prosumers (consumers who produce certain goods/services themselves for their personal consumption), self-service prosumers (consumers who partially or completely handle a service activity, originally handled by company personnel), customizing prosumers (consumers who customize goods/services for their personal consumption), collaborative prosumers (consumers who actively or passively provide for their own needs and the needs of others, without a commercial/profit motive), monetized prosumers (consumers whose activities related to consumption of the company's products or services are monetized through alternate channels, but are not rewarded by the company) and economic prosumers (who receive direct rewards for the value they create for the company) (Lang, Dolan, Kemper, & Northey, 2020).

2.3 Prosumption and Game Mods

Game modding refers to the modification of a game through alteration/addition of game elements created by users/gamers (Hong, 2013). The benefits of modding are value co-creation for gaming companies, increases the shelf life of games, create a recruiting pool for game developers, increases loyalty towards game franchises, user generated creative content that is vetted by other gamers (Kücklich, 2005) and enhancement of user experience (Kretzschmar & Stanfill, 2018). Mod users/other gamers also support modding through provision of feedback and recommending mods to members in their gaming community (Bilinska-Reformat, Dewalska-Opitek, & Hofman-Kohlmeier, 2020).

Based on benefits, mods can be classified as mutually beneficial mods, mods without benefit and mods that only benefit the industry. 'Mods with benefit' are arrangements that benefit the game developer and the user/gamer. The game developer release source code/developer tools allowing users to create their own mods, fix bugs/provide patches; as long as the mods are not used for commercial purposes. The mod developer may receive financial benefits, but usually receives non-financial rewards such as exposure/recognition at company organized gaming events/conferences. 'Mods without benefit' are those that neither benefit the developer nor the user, such as cheat codes that provide undue advantage to a group of gamers, while ruining the gameplay experience for other players. 'I Got Mine' (Mods that benefit the industry) are mods that provide little credit or

protection of intellectual property for the mod developer/user and the game developer does little to monitor mods that could be stolen/misused (Kretzschmar & Stanfill, 2018).

Based on utility, game mods can be classified as user interface customizations (modify game characters' appearance and attire; customization of colour palette of display; add-ons that modify the user's information panels without changing the game's dynamics), game conversions (adding or modifying – in game characters, items/resources, locations/maps, play rules) and machinima (hosting video replays of the game along with custom content such as voice overs/commentary, experience sharing, music or visual elements embedded in the replay) (Scacchi, 2011). Based on in-game features, mods can be classified as characters, item availability, graphics, locations, placement, improving, immersion and custom help (Hackman & Björkqvist, 2014).

The modified classification framework conceptualized by Hackman & Björkqvist includes two additional categories and is as follows-

Table 2.2.1 Modified Classification Framework - Mods

Types of Mods	Description
Characters	Creating or modifying in game characters (player characters, animals, NPCs, enemies, monsters)
Item Availability	Altering the placement of items, restrictions associated with item crafting, modifying the drop rates of items and altering the level restriction on usage of items.
Equipment	Designing, creating and/or modifying player equipment such as armour & clothing.
Graphics	Creation or alteration of models, textures and meshes within the game
Location	Creation or alteration of in-game locations that can be explored or experienced within the game
Placement	Modifying the placement of objects within the game to improve player experience and immersion.
Improving Immersion	Enhancing game immersion by altering/improving character or quest narratives.
Providing Custom Help	Providing assistance for players directing in game action and fulfilment of game objectives or creating assets that can be modified/customized.
Launcher	Allow the player to load additional mods and seamlessly integrate them with the game.
Cheats	Provide the player tools to alter or advance the player's in game character attributes, progress, acquire rewards or complete quests without adhering to the gameplay/narrative prescribed by the game.

Modders are predominantly not driven by financial motives or coercion into value creation (Kücklich, 2005). The motives for mod creation are perceived enjoyment, social affiliation,

engagement, appreciation for creation of creative content (Bilinska-Reformat, Dewalska-Opitek, & Hofman-Kohlmeyer, 2020), fixing perceived design flaws and enhancing gameplay experience (Hackman & Björkqvist, 2014). The relationship between modders and game developers in the present scenario is such that it is contritely interdependent (Deutsch, 1949). Game developers are looking for new avenues to monetize aspects of the game and modders provide additional value through content creation. Most game developers have incorporated mod like features in the form of paid add-on features that gamers have to pay, that has faced backlash from avid gamers (Francis, 2015).

While this synergy boosts gaming experience, developers seek to take control of these content add-ons by monetizing them, which does not incentivize the mod creator and defeats the purpose of co-creation. Among the popular platforms for mods, Nexus Mods reported that mods hosted on its platform were stolen without attribution and uploaded to the game developer, Bethesda's platform (Higgins, 2016). Bethesda later hosted a Creation club that incentivized modders for creating mods for its gaming titles. In an effort to monetize all additional creative content, existing mods that were free were simply removed from the platform (Strickland, 2021). While the game developer benefits, the platform that hosts the mods loses its credibility among mod creators. The gaming experience of a player using a mod enhances, but the goals of co-creation do not align with the profit motives of game developers. This can in turn lead to co-destruction. This is a typical case with game remasters such as *Warcraft 3 Reforged* that received very poor user ratings for failing to fulfil gamer expectations. Furthermore, the new art tools made all user created content such as custom maps fall under the ownership of the developer, Activision Blizzard (Fenlon, 2020). This essentially removed all recognition for content creators, alienated possible modders and removed an essential feature of previous Blizzard gaming titles that encouraged customization. This flawed reasoning led to co-destruction, as non-preferred value was created. Co-destruction (Lintula, Tuunanen, & Salo, 2017) usually occurs from the point of view of game developers, when they choose profits over the value of co-creation.

2.4 Immersion, Gratification and Gameplay experience

Gameplay experience is determined by involvement (Wirth, et al., 2007), immersion (Witmer & Singer, 1998) and flow (Csikszentmihalyi, 1990). Immersion usually commences with engagement (willingness to invest time and energy in the game). Based on the game's features, gamers can get enveloped in the narrative, audio-visual elements and atmosphere/world. At a point, they lose track of their physical surroundings and are fully immersed in the game's environment and is referred to a state of total immersion (Brown & Cairns, 2004).

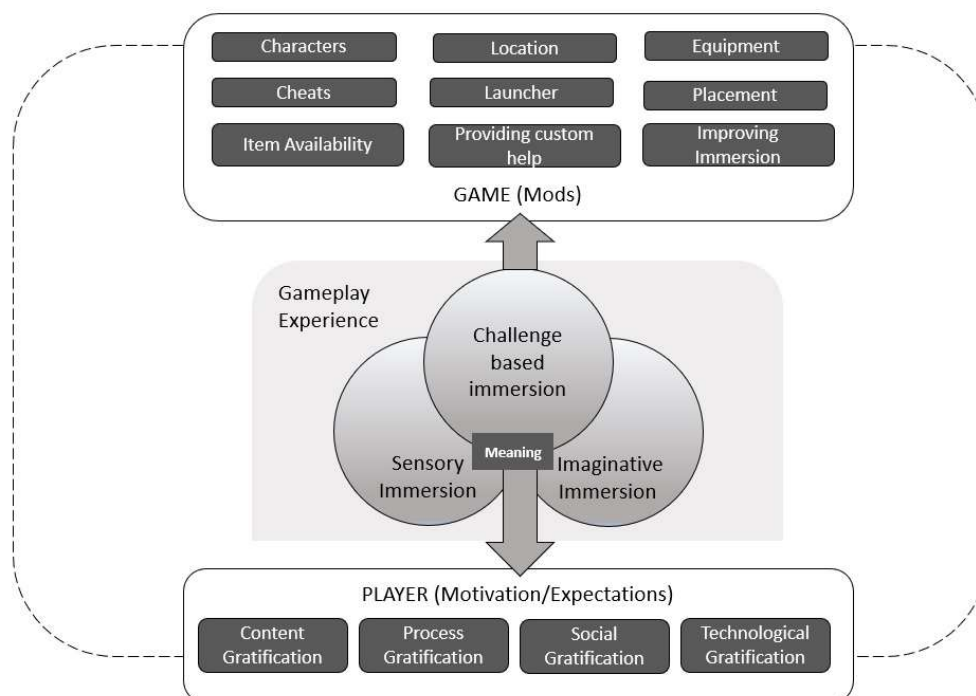
Gratification (Herzog, 1944) as conceptualized in the 'Uses and Gratification model' states that individual's choice of media consumption is based on his desire for a specific form of gratification (Katz, Blumler, & Gurevitch, 1974). The description of various types of gratification proposed by Bakar, Bolong, Bidin, & Mailin is follows –

Table 2.4.1 Types of Gratification – Definitions

Types of Gratification	Description
Content Gratification	Gratification derived from perceived quality of content (Stafford, Stafford, & Schkade, 2004)
Process Gratification	Gratification derived based on the nature/manner of media consumption, as opposed to the content itself. (Chae & Chung, 2010)
Social Gratification	Gratification derived through interactions with other users/consumers of media content. (Krishnatray, Singh, Raghavan, & Varma, 2009)
Technological Gratification	Gratification derived through a user's convenience/comfort with the usage of technological application. (Venkatesh, Morris, Davis, & Davis, 2003)

2.5 Conceptual Framework

The framework adopted for evaluation of gameplay experience is based on the SCI model proposed by Ermi & Mayra, 2005. The SCI model conceptualizes gameplay experience to be a product of immersion namely challenge based immersion (challenge/quest-based elements and the player's ability to tackle/complete the same), sensory immersion (impact of auditory and visual elements on the player) and imaginative immersion (ability of the player to relate/connect with in



game characters, enact fantasies within the game) (Ermi & Mayra, 2005).

The modified framework considers types of gratification (Bakar, Bolong, Bidin, & Mailin, 2014) among player characteristics and the various types of game mods as game characteristics (Hackman & Björkqvist, 2014).

With regard to roleplaying games, gameplay experience is influenced by player motives which include advancement, mechanics, competition, socializing, relationships, team work, discovery, role playing, customization, escapism (Yee, 2006). With regard to other genres, coping, skill development and recreation are also noted as motives which can shape gameplay experience (Demetrovics, et al., 2011). The player's motives can be influenced by the style of gameplay and can either be centered on competitive gameplay or immersive discovery-based gameplay (Tychsen, Hitchens, & Brolund, 2008). Among the various motives, the desire for escapism, advancement and socializing are likely to lead total immersion within the game (Dauriat, et al., 2011).

3. Methodology

Information provided by mod developers and associated statistics for 50 mods associated with Stardew Valley were sourced from NexusMods (NexusMods, 2021a). The details of the mods (name, creator, description) chosen for the study are available under Appendix 1. The mods chosen for this study were then classified based on the modified framework (Hackman & Björkqvist, 2014) for further analysis. The classification of the chosen Stardew Valley Mods are mentioned in Appendix 2. Data pertaining to the number of views, number of downloads and endorsements for respective mods were also collected (28th & 29th July, 2021) and the mean score for each category of mod based on the modified classification framework (Hackman & Björkqvist, 2014) were calculated.

The metrics used for analysing the popularity of a given mod were Average Downloads (per 1000 views) and Average Endorsements (per 1000 downloads). The collated data is tabulated in Appendix 3. Data for respective mods were also evaluated based on the types of gratification (Bakar, Bolong, Bidin, & Mailin, 2014). The classification of various mods based on types of gratification is tabulated in Appendix 4. The tabulated data were analysed based on the following hypotheses –

H₁: There is a significant association between the total number of views and number of downloads for respective mods.

H₂: There is a significant association between the total number of views and number of endorsements for respective mods.

H₃: There is a significant association between the number of downloads and number of endorsements for respective mods.

H₄: There is a significant association between the type of mod and total number of views for respective mods.

H₅: There is a significant association between the type of mod and number of downloads for respective mods.

H₆: There is a significant association between the type of mod and number of endorsements for respective mods.

H7: There is a significant association between the type of gratification generated by a mod and the number of endorsements specific mods receive.

Evaluation of mod popularity, users preferences and differences in gratification were analysed using descriptive statistics. The tools used for descriptive analysis and statistical analysis were MS Excel and R respectively.

4. Results

4.1 Statistical analysis

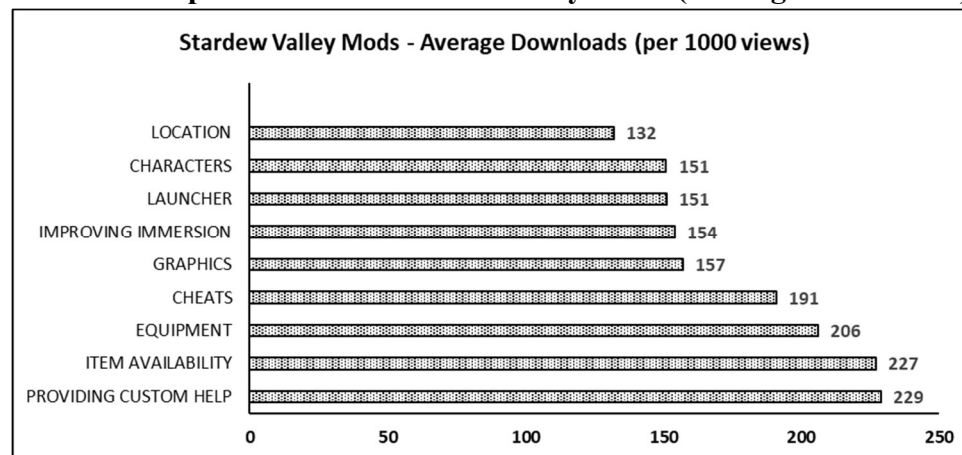
The number of views, downloads and endorsements were bifurcated into categories based on their respective quartiles. The numerical labelling of the dataset based on respective quartiles and the quartile limits are tabulated in Appendix 5. Furthermore, the types of mods and types of gratification were also assigned numerical labels for non-parametric testing.

With regard to the association between total number of views, downloads and endorsements; H₁ ($\chi^2 = 108.2$, df = 9, p-value < 2.2e-16), H₂ ($\chi^2 = 60.469$, df = 6, p-value = 3.615e-11) and H₃ ($\chi^2 = 54.289$, df = 6, p-value = 6.45e-10) are substantiated. This indicates that the number of times a mod is viewed determines the number of downloads and subsequent endorsements.

With regard to the association of mod type with the total number of views, number of downloads and endorsements; H₄ and H₆ are not substantiated ($p > 0.05$), while H₅ is substantiated ($\chi^2 = 32.694$, df = 16, p-value = 0.00811). This is an indicator the number of downloads a mod receives is dependent on its category and these results are further explained using descriptive analysis. H₇ is not substantiated ($p > 0.05$) which indicates that there is no significant difference in the number of endorsements received based on the type of gratification. It can be inferred that gamer gratification is tied to the utility of specific mods and no specific type of gratification generates greater or lesser number of endorsements.

4.2 Descriptive analysis

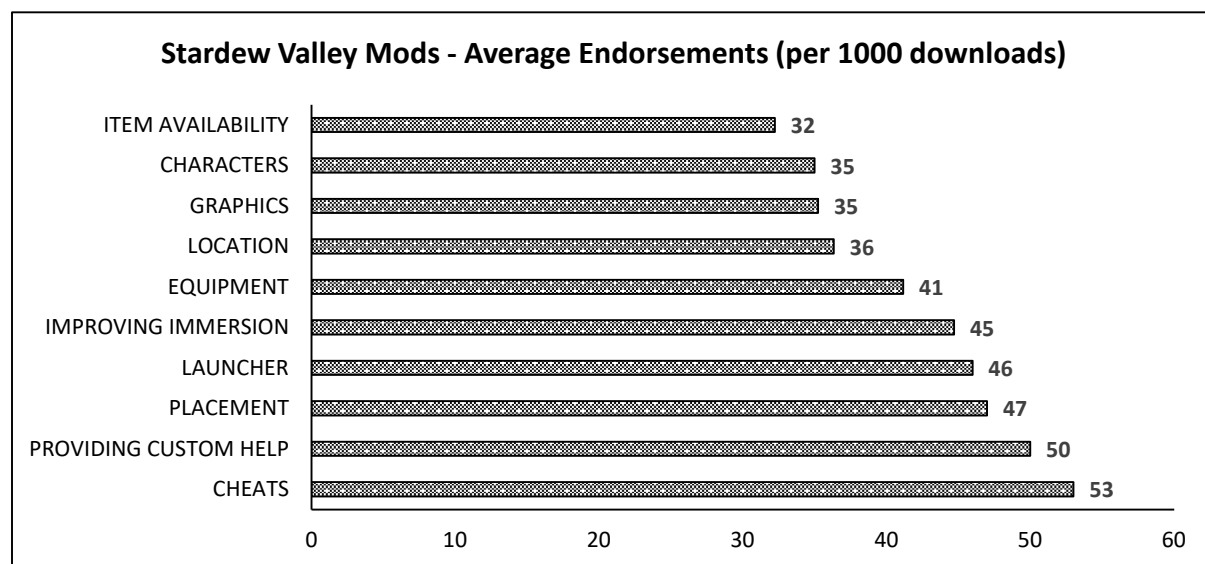
4.1.1 Gamer preference of Stardew Valley Mods (Average Downloads)



Based on downloads, the most popular category of mods pertain to ‘Providing Custom Help’ and the most popular mods in this category are Gift Taste Helper (260 downloads per 1000 views) and Simple Fishing (245 downloads per 1000 views). Gift Taste Helper provides information regarding the favourite gifts for NPCs/villagers within the game (NexusMods, 2021b). In the world of Stardew Valley, the game’s narrative is driven by relationships with various NPCs and also open up certain in game events/cutscenes based on the relationship with the NPC. Providing gifts on a periodic basis helps earn hearts and build relationships. If the NPC loves the gift, it earns the character up to 80 friendship points, but disliking a gift can lower friendship points by around 20 friendship points (Stardew Valley Wiki, 2021a). Gifting in Stardew Valley is learned on a ‘trial error’ basis and the availability of preferences makes gifting easier, speeding up the game’s narrative and enhances imaginative immersion (Ermi & Mayra, 2005). Simple Fishing is mod that making the fishing mini game in Stardew valley simpler (NexusMods, 2021c). Fishing is the most challenging skill to master within the game compared to other professions (farming, mining, foraging and combat). The mod makes it easier to master this skill and advance the character’s progress.

The least preferred mods pertain to ‘Location’ and the least downloaded mods in this category are Multi-Biome Farm (87 downloads per 1000 views) and Immersive shops – Pierre (88 downloads per 1000 views). Multi-Biome farm features automated sprinklers, junimo huts and spawns forage (NexusMods, 2021d). However, there are no novel features that alter or enhance gameplay. Immersive shops – Pierre is a mod that allows you to make purchase directly from the shelves in Pierre’s store and the visual displays of items change based on seasons and are indicative of the season’s produce (NexusMods, 2021e). In the original game, all purchases can be made at the cash counter from Pierre and the shelf displays were constant. It can be inferred that players consider making purchases from Pierre’s store as a chore rather than a fun/engaging in-game activity.

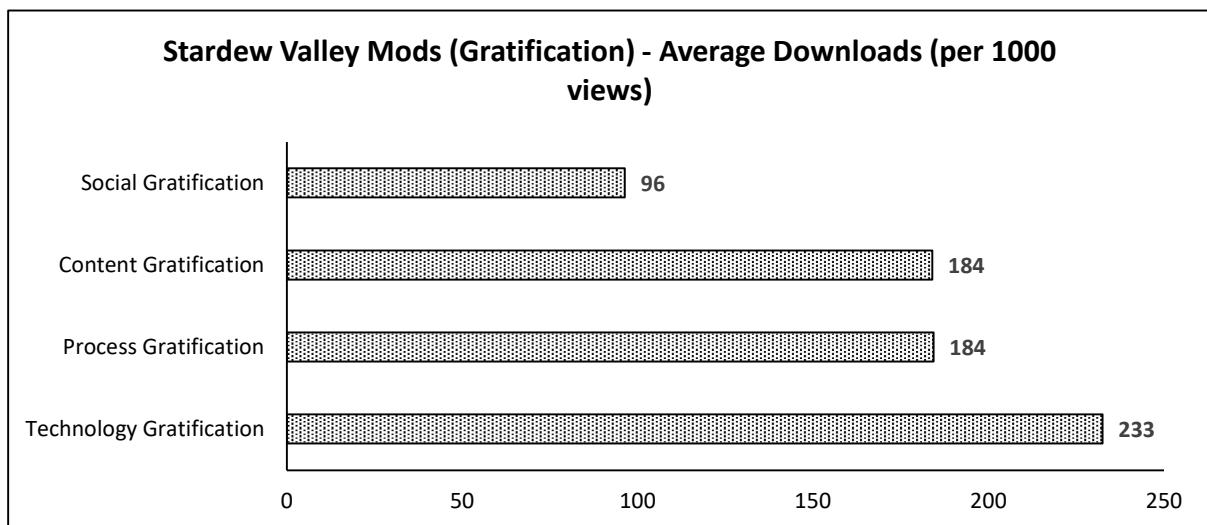
4.1.2 Gamer preference of Stardew Valley Mods (Average Endorsements)



Based on endorsements, the most popular mods pertain to ‘Cheats’ and the mods in this category are CJB Cheats Menu (52 endorsements per 1000 downloads) and CJB Item Spawner (54 endorsements per 1000 downloads). CJB Cheats Menu is a mod that helps the player quickly advance their character’s skill levels, modify relationship status, warp to various in game locations etc, bypassing the game’s skill based, relationship based and quest-based progression mechanism (NexusMods, 2020f). CJB Item Spawner is a mod that allows the player to spawn in-game items without having to forage/mine/grow/procure the required ingredients or materials. This mod helps the player to avoid the time-consuming task of searching for rare or raw materials for upgrading the player’s inventory (NexusMods, 2020g). The use of cheats helps the player to easily complete quests which are usually tied to acquiring rare resources, produce, forage or ores; tasks which become mundane as the game progresses. Quicker advancement enhances challenge-based immersion (Ermi & Mayra, 2005) as the player is able to complete quests/tasks easier.

The least endorsed mods pertain to ‘Item availability’ and the least preferred mod is Fish Ponds Rebalanced (24 endorsements per 1000 downloads). This mod is concerned with improving the spawn rates of fish within fish ponds, increasing income for the player using fish ponds (NexusMods, 2020k).

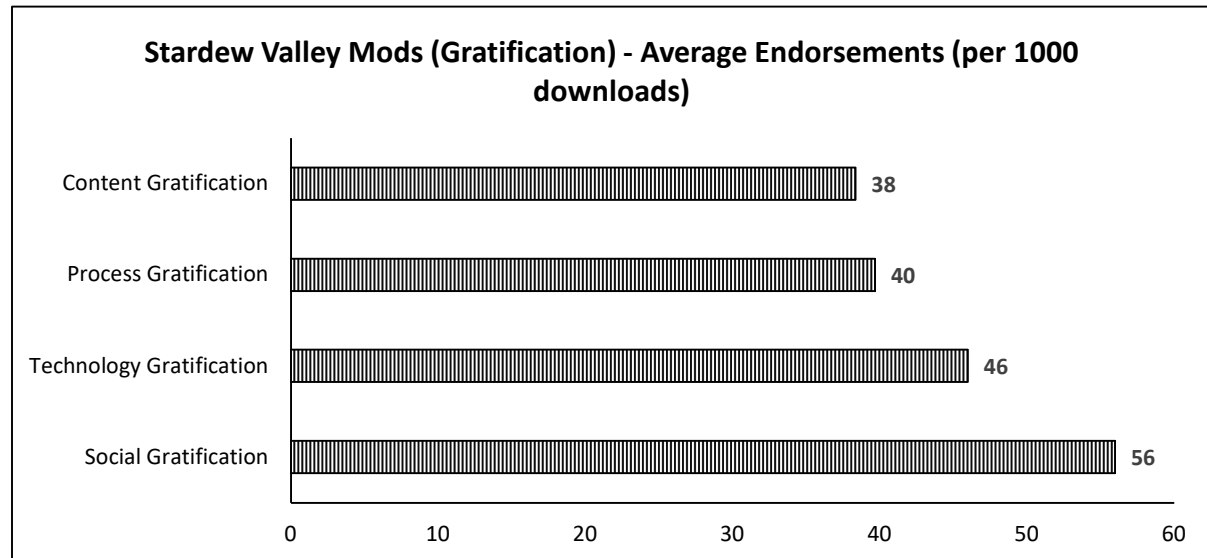
4.1.3 Gratification provided by Stardew Valley Mods (Average Downloads)



Among downloads, Technological gratification is determined to be the key motive for usage of Stardew Valley mods and the popular mods in this category are Content Patcher (240 downloads per 1000 views) and Stardew Valley Mod API (SMAPI) (225 downloads per 1000 views). Content Patcher is a ‘Launcher’ mod that helps load content packs without having to replace XNB files. The content packs loaded through this pack allow auto updates, easy installation/uninstallation and do not fail during game updates (NexusMods, 2020h). Stardew Valley Mod API (SMAPI) is a ‘Launcher’ mod that serve as the popular launcher for other mods (NexusMods, 2020i). The popularity of launcher mods can be attributed to the necessity for gamers to find appropriate technological applications for loading/running other mods.

Social gratification is the least likely motive for usage of Stardew Valley mods and the least preferred mod is Platonic Partners and Friendships (83 downloads per 1000 views). Platonic Partners and Friendships is an ‘Improving Immersion’ mod which allows the player to pursue non-romantic relationships with other NPCs within the game (NexusMods, 2020j). However, this feature already exists within the original game where the player can decide who he chooses to date or to marry, while maintaining good friendships with the NPCs. It can be interpreted that the gamer may perceive no additional value when deciding on downloading the mod.

4.1.4 Gratification provided by Stardew Valley Mods (Average Endorsements)



Social gratification is identified as the key motive for endorsing Stardew Valley Mods and the most popular mods in this category are Platonic Partners and Friendships (73 endorsements per 1000 downloads) and Community Center Reimagined (48 endorsements per 1000 downloads). While Platonic Partners and Friendships has few downloads, the higher endorsements could be attributed to contents of the mod that enhance imaginative immersion (Ermi & Mayra, 2005). The mod allows the player to designate player relationships with chosen NPCs as platonic, allows the player to choose a ‘best friend’ and alters all NPC interactions/heart events to suit these changes. Gamers who were looking for an alternative game narrative with regard to NPC relationships are likely to have found social gratification through the new set of interactions. Community Center Reimagined is a ‘Location’ mod that allows more social interactions with NPCs within the game by redesignating the improved Community Center for social activities (cooking classes, meetings on rainy days, reassigns craft room as the school room, and displays new notices on the notice board) (NexusMods, 2020l). In the original game, the Stardrop Saloon is the only venue that hosts regular social interactions and the provision of a location with additional game elements contributes to sensory and imaginative immersion (Ermi & Mayra, 2005).

The least endorsed mods pertain to Content Gratification and the mods with the lowest endorsement are Overgrown Fairy Cabins (19 endorsements per 1000 downloads) and Female Farmer Overhaul (20 endorsements per 1000 downloads). Overgrown Fairy Cabins is a ‘Location’ mod that alters the appearance of cabins, which are among the buildings the player can construct

on his farm (NexusMods, 2020m). However, the alteration of appearance does not impact gameplay or alter the narrative of the game and hence has no impact on immersion. Female Farmer Overhaul is an 'Equipment' mod provides various configurations in clothing, hairstyle, shoes, skin tone etc (NexusMods, 2020n). However, as all alterations are rendered on 2D sprites, the visual appeal of minor changes may not be perceived to have much impact on the gamer. Furthermore, appearance changes in the gamer's in-game character/avatar does not impact gameplay.

5. Discussion

Prosumption is a product of various gamers/users experiences when consuming gaming content. The subjective experiences of gamers (Ritzer, Dean, & Jurgenson, 2011) provides insights and facilitates the creation of customized mods by avid gamers (Toffler, 1980) for use by other members of the gaming community. The creators of various Stardew Valley mods are collaborative prosumers (Lang, Dolan, Kemper, & Northey, 2020) as their mods/creative content are available free of cost (Kücklich, 2005) on Nexus Mods and are periodically updated using patches based on feedback from mod users/gamers (Bilinska-Reformat, Dewalska-Opitek, & Hofman-Kohlmeyer, 2020). As a result, the relationship between modders and the game developer, ConcernedApe is promotively interdependent (Deutsch, 1949) as the mod developers fulfil their objectives and simultaneously boost the shelf life of the game. In this regard, the developer of Stardew Valley has welcomed modding for his game and has not sought to profit from it (ConcernedApe, 2020). Furthermore, the possibility of mods in resulting in co-destruction is highly unlikely as Stardew Valley mods are constantly reviewed and endorsed by gamers. Mods that add little or no value to gaming experience are least downloaded and are not endorsed on NexusMods.

The motive for playing Stardew valley is primarily recreational (Sutherland, 2020) and the game's theme centers around an agrarian escape from the mundanity of urban life. Furthermore, the game offer players an authentic desk chair countryside experience (engaging in rural activities through one's computer). The themes that Stardew valley centers around is the oppressing presence of megacorporations and the need to protect rural life and the environment through choices made as part of the game's narrative (Sutherland, 2020). The game's overarching narrative centers around the decision to side with community in reviving the dilapidated Community Center or support the evil Joja Corporation, who intend to turn it into a warehouse. Siding with Joja Corporation offers the player an easy quest completion narrative, where large sums of gold earned through trade can be exchanged for completion of ingame quests (repairing the mine cart, repairing the bus etc.). . However, choosing to revive the Community Center will require the player to collect a plethora of resources (exotic fish, seasonal produce, rare forage etc.) classified into specific bundles that will be collected by mystical NPCs known as Junimos on completion. The completion of bundles will provide unique rewards that include in game rewards that could only be completed through payment to Joja Corporation in the alternate narrative. While growing/foraging certain resources are easy to achieve, completion of entire bundles will require devoted hours of gameplay and skill advancement. Despite advancement, players may not chance upon the required resources, which can delay the player's in game progress. Certain Stardew Valley mods that offer 'custom help'

are the most popular category in terms of downloads and are a source of content gratification (Stafford, Stafford, & Schkade, 2004) which also consists of gratification gained through information seeking (Harrell, 2000). While custom help is for players seeking to further their progress without compromising gameplay experience, certain players wish to take the easy route, at the cost of individual gameplay experience. ‘Cheats’ mods are the most popular category in terms of endorsements and are a source of process gratification (Chae & Chung, 2010). While certain authors consider cheats to have a negative effect on gaming experience for other players (Kretzschmar & Stanfill, 2018), Stardew Valley is an exception as the challenges and quests within the game are linear and never pit players against each other. In the multiplayer mode, other players can reside on the host’s farm and help with routine activities and completion of quests/challenges. Therefore, cheats are unlikely to ruin gaming experience in the context of multiplayer mode.

Technological gratification (Venkatesh, Morris, Davis, & Davis, 2003) is a key motive for downloading Stardew Valley mods as launcher mods are essential for loading/integrating other mod/content packs with the original game. There are concerns among gamers regarding the security risks concerned with downloading mods such as malware as they are created by users (Trend Micro, 2015). Comfort pertaining to mod launchers makes it easier for the gamer to access other mods to enhance their gaming experience. Social gratification (Krishnatray, Singh, Raghavan, & Varma, 2009) is a key motive for endorsing Stardew Valley mods. Stardew Valley has 12 romanceable NPCs within the game while permitting both heterosexual and same gender relationships. Furthermore, the path to forming a romantic relationship with an NPC is a ladder that is determined by actions such as gifting. As the player’s in game character levels up in the heart meter; the NPC’s backstory, character traits and exclusive cutscenes are revealed. This increases the playtime of the game, as the choice of romantic interest opens up new backstories, interactions and cutscenes. These interactions and relationships within the game are parasocial in nature (Horton & Wohl, 1956) as NPCs are fictional characters. Additional social interactions enhance a player’s imaginative immersion (Ermi & Mayra, 2005) and improve gameplay experience.

While mods benefit other users/gamers, mod users can also turn to prosumers through machinima (Scacchi, 2011). One of the popular channels on Youtube, Dangerouslyfunny who has over 1.3 million subscribers posted a series of videos on using mods to push the limits of the game through various scenarios such as planting trees on every empty tile on the map (DangerouslyFunny, 2021a), walking on water/walking across any terrain (DangerouslyFunny, 2021b), trying to marry every romanceable NPC at the same time (DangerouslyFunny, 2021c) etc. These videos include the player’s commentary which induces interest among viewers, which in turn induces more players to try mods and increases their imaginative immersion.

6. Limitations, Conclusion & Implications

The analysis of sources of gratification are solely based on the mod description provided by creators on Nexusmods. However, primary data collected from users/gamers could provide a deeper understanding as to player motives for using specific Stardew Valley mods.

Prosumption through modding is a form of value co-creation that benefits both the mod developer and the gamer as desired or missing features, technical glitches/bugs are resolved through the creation of specific mods. Both the mod developer and the end user/gamer are partners in ideation and creation of new content associated with video games through feedback and updates, which benefits the game developer as it increases the shelf life of the game and improves gaming experience.

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APPENDIX 1 – Stardew Valley Mods (Details)

S.No	Mod Name	Mod Creator	Mod Description
1	Female Farmer Overhaul	Anonymous1indigo	New edited clothing (112 shirts, 5 pants), 54 new hairstyles, dynamic sleeves, brighter hairstyle, new shoe colours, new skin colours, redone accessories
2	Immersive Shops - Pierre	donko526	Changing merchandise variety at Pierre's store based on seasons and duration of play.
3	Fish Ponds Rebalanced	Mnseic	Faster spawn rates for fish, rebalancing of pond populations, balancing output of lava yields to gold output, other modified dynamics for ponds.
4	Stardew Valley Expanded	FlashShifter	More than 30 hours of new content (additional NPCs, dynamic dialogue, new personalities, in game events, backstory for various new characters)
			Expansion of the Joja storyline – where the player's actions determines Joja's takeover of Stardew Valley.
			Addition of 2 farm maps and 32 new in game locations, which are tied to in game progression and completion of questions. Addition of up to 850 new location message based on exploration of the world of Stardew Valley.
			Addition of 18 new fish with new catch locations, difficulty, selling price and new world map
5	NPC Map Locations	Bouhm and Pathoschild	Tracking NPC's and other players within the game, changing maps based on seasons, multiplayer support, provision of location for farm buildings, show/hide characters based on relationship, relevant quests or approaching birthdays.
6	Stardew Valley Anime mods	OhoDavi	Modifications in portraits of NPC love interest and other NPC portraits
7	Content Patcher	Pathoschild	Loading content packs that alter the game's images and data without replacing XNB files.
8	Stardew Valley Mod API (SMAPI)	Pathoschild	Official Mod loader/launcher for Stardew Valley

9	CJB Cheats Menu	CJBok and Pathoschild	Cheats menu with a range of cheat pertaining to relationship with game characters, modifying player's in game character attributes etc.
10	CJB Item Spawner	CJBok and Pathoschild	In-game item spawner menu that helps a player bypass the resource requirements for crafting new/advanced items
11	Lookup Anything	Pathoschild	Informational mod that allows the player to quickly understand NPC preferences, crop cycles etc.
12	Tractor Mod	Pathoschild	Allow purchase of a tractor that speeds up farming and clearing activities.
13	Automate	Pathoschild	Allows placement of a chest next to a furnace/crystallarium and allows automatic transfer of raw materials/ores into the machines and transfer of processed goods back into the chest. Allows the link of a chest to multiple machines.
14	Farm Type Manager (FTM)	Esca-MMC	Allows custom creation of forage, ore deposits, boulders, meteors, monsters at any location within the game.
15	UI Info Suite	Cdaragorn	Provides in game notifications of events around the character within the game.
16	Gift Taste Helper	Tyler	Provides a guide regarding an NPC's favourite gifts when looking their birthday on the in game calendar or the social page.
17	Winter Grass	Cat	Allows grass to survive during the winter season, a feature not available in the original game.
18	Skull Cavern Elevator	Lestoph	Provides an elevator that directly connects to the Skull Cavern
19	CJB Show Item Sell Price	CJBok and Pathoschild	Allows viewing of the sell price of items in the player's inventory.
20	Events Expansion	nraittanna	Additional of new heart events for the villagers/NPCs
21	Farm Animal Facelift	siamece	Additional sprites and a new art style for barn and coop animals, with several breed and colour options.
22	SH's Wild Animals	SmolHooman	Allows placement of wild animals to the game based on player preferences.

23	Idaida's Furniture Recolor (For CP)	IdaIda	Furniture recolour with additional themes
24	Magical Crops	shekurika and Asterisk555	Addition of 7 magical crops with 8 quests and a minor story consisting of 4 events. Seeds for these crops arrive via mail, through events or as quests. Additional seeds can be procured at the wizards Tower through the seed chest. Magical crops produce strange properties during their growth.
25	DC Burger Style Ridgeside Village 5 Bachelor Potraits	OrangePieUwU	Top resolution portraits of Ridgeside Village bachelors (Ian, Shiro, Philip, Jeric, Kenneth), made to fit with DCBurger's Portrait style. Also includes beach portraits.
26	Better Junimos Forestry	ceruleandeep	Junimos, special creatures within the game will maintain the player's fields, plant wild trees for harvesting wood, care for the player's fruit trees, clear debris, and help mow lawns.
27	Multi Biome Farm	KasiaiTomi	Multiple farm types with numerous quality of life changes and renewable forage items.
28	Gus's Recipe Book	donko526	Unique recipes from Gus' shop inventory by the new feature of a recipe book from the Stardrop Saloon. Players can purchase recipes from the book instead of paying Gus directly. Features additional mods.
29	Flowing Mine Rocks	aedenthorn	Similar mine rocks get connected into a single flowing rock that shrinks as the player breaks it apart
30	Overgrown Fairy Cabins	Bruttapersona	Add cut/decorated fairy cabins.
31	FQ Festival Tweaks	FletcherQuest	Allows the player to return home when the festival actually ends (not at midnight). Allows the player to continue with their regular activities for the day.
32	Hay Silo Updated	E_Wang Flor3nce2456	Provides a new hay stack silo as opposed to the tall, wooden domed silo in the original game.
33	Community Center Helper	vgpersion	Provides in-game suggestions in findings items for completing Community Center bundles when you hover over them in the menu

34	Ellie's Ideal Greenhouse	Ellibear	Expanded greenhouse with 3 layout options based on the gamer's play style.
35	Pregnancy and Birth Events	KristinTheRed	Adds an event where the player's in-game spouse finds out that you are pregnant. New event when the player's character or their spouse gives birth.
36	Chargeable Axe and Pickaxe	VonLoewe	Modified Axe and Pickaxe with similar properties like the hoe and the watering Can. Holding the tool button allows charge up that affects the tiles in surrounding area.
37	Visible Fish - See Catchable Fish in the Water	shekurika	Reveals fish that are currently catchable in the water.
38	Underground Secrets	aedenthorn	New shrines, alters, riddles, traps, caverns and fungal flora.
39	Character Customization Anywhere	J	Allows alteration to the player's character appearance anywhere within the game.
40	Vibrant Pastoral Recolor for SVE	grapeponta	Additional Vibrant Pastoral Recolor content pack
41	Let Me Rest	Ophaneom	Allows stamina recovery when seated, riding and stopped.
42	Gwen's Paths	Gweniaczek	Retextures/recolours of paths and floorings (crafted).
43	Map Teleport	aedenthorn	Allows fast travel to any labelled location in the game map.
44	Allow Beach Sprinklers	Jag3Dagster	Allows placement of sprinklers on the beach farm.
45	(CP) Victorian Craftables	Hadi	Craftables inspired by Eemie's Victorian Buildings.
46	Ore Increase	crazywig	Increase the chances of ore being placed on the map by up to three times.

47	Platonic Partners and Friendships	Amaranthacyan	Allows choice of marriage candidates for a platonic relationship and edits all their romantic 8+ heart dialogues, to resemble a close friendship. Features a detailed and customizable platonic partnership option as an alternative to marriage.
48	Balloon Ride	aedenthorn	Allows the player's character to invite an NPC they are dating on a balloon ride, by calling them on their mobile phone.
49	Community Center Reimagined	LemurKat	Changes NPC schedules on rainy days, where selected groups of NPCs visit the Community Center for socialize gatherings. Kids lessons can be moved into the Crafts room and allows for custom teachers. Adds fish to the tank
50	Simple Fishing	CavaliereDraghi	Make the fishing mini-game simpler. as it attempts to make all the fish easy to catch, with little to no effort.

APPENDIX 2 – Classification of Stardew Valley Mods

Mod Name	Mod Details	Type of Mod
Female Farmer Overhaul	New edited clothing (112 shirts, 5 pants), 54 new hairstyles, dynamic sleeves, brighter hairstyle, new shoe colours, new skin colours, redone accessories	Equipment
Immersive Shops - Pierre	Changing merchandise variety at Pierre's store based on seasons and duration of play.	Location
Fish Ponds Rebalanced	Faster spawn rates for fish, rebalancing of pond populations, balancing output of lava yields to gold output, other modified dynamics for ponds.	Item Availability
Stardew Valley Expanded	More than 30 hours of new content (additional NPCs, dynamic dialogue, new personalities, in game events, backstory for various new characters)	Improving Immersion
	Expansion of the Joja storyline – where the player's actions determines Joja's takeover of Stardew Valley.	Characters
	Addition of 2 farm maps and 32 new in game locations, which are tied to in game progression and completion of questions. Addition of up to 850 new location message based on exploration of the world of Stardew Valley.	Improving Immersion
	Addition of 18 new fish with new catch locations, difficulty, selling price and new world map	Location

NPC Map Locations	Tracking NPC's and other players within the game, changing maps based on seasons, multiplayer support, provision of location for farm buildings, show/hide characters based on relationship, relevant quests or approaching birthdays.	Providing Custom Help
Stardew Valley Anime mods	Modifications in portraits of NPC love interest and other NPC portraits	Characters
Content Patcher	Loading content packs that alter the game's images and data without replacing XNB files.	Launcher
Stardew Valley Mod API (SMAPI)	Official Mod loader/launcher for Stardew Valley	Launcher
CJB Cheats Menu	Cheats menu with a range of cheat pertaining to relationship with game characters, modifying player's in game character attributes etc.	Cheats
CJB Item Spawner	In-game item spawner menu that helps a player bypass the resource requirements for crafting new/advanced items	Cheats
Lookup Anything	Informational mod that allows the player to quickly understand NPC preferences, crop cycles etc.	Providing Custom Help
Tractor Mod	Allow purchase of a tractor that speeds up farming and clearing activities.	Equipment
Automate	Allows placement of a chest next to a furnace/crystallarium and allows automatic transfer of raw materials/ores into the machines and transfer of processed goods back into the chest. Allows the link of a chest to multiple machines.	Equipment
Farm Type Manager (FTM)	Allows custom creation of forage, ore deposits, boulders, meteors, monsters at any location within the game.	Item Availability
UI Info Suite	Provides in game notifications of events around the character within the game.	Providing Custom Help
Gift Taste Helper	Provides a guide regarding an NPC's favourite gifts when looking their birthday on the in game calendar or the social page.	Providing Custom Help
Winter Grass	Allows grass to survive during the winter season, a feature not available in the original game.	Item Availability
Skull Cavern Elevator	Provides an elevator that directly connects to the Skull Cavern	Equipment

CJB Show Item Sell Price	Allows viewing of the sell price of items in the player's inventory.	Providing Custom Help
Events Expansion	Additional of new heart events for the villagers/NPCs	Characters
Farm Animal Facelift	Additional sprites and a new art style for barn and coop animals, with several breed and colour options.	Characters
SH's Wild Animals	Allows placement of wild animals to the game based on player preferences.	Characters
Idaida's Furniture Recolor (For CP)	Furniture recolour with additional themes	Improving Immersion
Magical Crops	Addition of 7 magical crops with 8 quests and a minor story consisting of 4 events. Seeds for these crops arrive via mail, through events or as quests. Additional seeds can be procured at the wizards Tower through the seed chest. Magical crops produce strange properties during their growth.	Item Availability
DC Burger Style Ridgeside Village 5 Bachelor Portraits	Top resolution portraits of Ridgeside Village bachelors (Ian, Shiro, Philip, Jeric, Kenneth), made to fit with DCBurger's Portrait style. Also includes beach portraits.	Characters
Better Junimos Forestry	Junimos, special creatures within the game will maintain the player's fields, plant wild trees for harvesting wood, care for the player's fruit trees, clear debris, and help mow lawns.	Item Availability
Multi Biome Farm	Multiple farm types with numerous quality of life changes and renewable forage items.	Location
Gus's Recipe Book	Unique recipes from Gus' shop inventory by the new feature of a recipe book from the Stardrop Saloon. Players can purchase recipes from the book instead of paying Gus directly. Features additional mods.	Item Availability
Flowing Mine Rocks	Similar mine rocks get connected into a single flowing rock that shrinks as the player breaks it apart	Graphics
Overgrown Fairy Cabins	Add cut/decorated fairy cabins.	Location
FQ Festival Tweaks	Allows the player to return home when the festival actually ends (not at midnight). Allows the player to continue with their regular activities for the day.	Improving Immersion

Hay Silo Updated	Provides a new hay stack silo as opposed to the tall, wooden domed silo in the original game.	Location
Community Center Helper	Provides in-game suggestions in findings items for completing Community Center bundles when you hover over them in the menu	Providing Custom Help
Ellie's Ideal Greenhouse	Expanded greenhouse with 3 layout options based on the gamer's play style.	Location
Pregnancy and Birth Events	Adds an event where the player's in-game spouse finds out that you are pregnant. New event when the player's character or their spouse gives birth.	Improving Immersion
Chargeable Axe and Pickaxe	Modified Axe and Pickaxe with similar properties like the hoe and the watering Can. Holding the tool button allows charge up that affects the tiles in surrounding area.	Equipment
Visible Fish - See Catchable Fish in the Water	Reveals fish that are currently catchable in the water.	Location
Underground Secrets	New shrines, alters, riddles, traps, caverns and fungal flora.	Location
Character Customization Anywhere	Allows alteration to the player's character appearance anywhere within the game.	Characters
Vibrant Pastoral Recolor for SVE	Additional Vibrant Pastoral Recolor content pack	Graphics
Let Me Rest	Allows stamina recovery when seated, riding and stopped.	Improving Immersion
Gwen's Paths	Retextures/recolours of paths and floorings (crafted).	Graphics
Map Teleport	Allows fast travel to any labelled location in the game map.	Improving Immersion
Allow Beach Sprinklers	Allows placement of sprinklers on the beach farm.	Item Availability
(CP) Victorian Craftables	Craftables inspired by Eemie's Victorian Buildings.	Equipment
Ore Increase	Increase the chances of ore being placed on the map by up to three times.	Item Availability

Platonic Partners and Friendships	Allows choice of marriage candidates for a platonic relationship and edits all their romantic 8+ heart dialogues, to resemble a close friendship. Features a detailed and customizable platonic partnership option as an alternative to marriage.	Improving Immersion
Balloon Ride	Allows the player's character to invite an NPC they are dating on a balloon ride, by calling them on their mobile phone.	Improving Immersion
Community Center Reimagined	Changes NPC schedules on rainy days, where selected groups of NPCs visit the Community Center for socialize gatherings. Kids lessons can be moved into the Crafts room and allows for custom teachers. Adds fish to the tank	Location
Simple Fishing	Make the fishing mini-game simpler. as it attempts to make all the fish easy to catch, with little to no effort.	Providing Custom Help

APPENDIX 3 – Stardew Valley Mods (Mean scores)

S.No	Mod Name	Endorsements	Downloads	Total no.of views	Downloads (per 1000 views)	Endorsements (per 1000 downloads)
1	Female Farmer Overhaul	39	1915	12892	149	20
2	Immervise Shops - Pierre	34	1073	12192	88	32
3	Fish Ponds Rebalanced	32	1312	7875	167	24
4	Stardew Valley Expanded	25079	528263	5488866	96	47
5	NPC Map Locations	54002	1049475	4869578	216	51
6	Stardew Valley Anime mods	9139	259170	2175382	119	35
7	Content Patcher	62271	1279673	5342346	240	49
8	Stardew Valley Mod API (SMAPI)	54153	1264766	5618397	225	43

9	CJB Cheats Menu	50528	970641	5847176	166	52
10	CJB Item Spawner	45560	841007	3915531	215	54
11	Lookup Anything	33570	559939	2832173	198	60
12	Tractor Mod	26170	571661	2551390	224	46
13	Automate	27208	429432	2377161	181	63
14	Farm Type Manager (FTM)	20453	535379	1497300	358	38
15	UI Info Suite	26276	473015	2101948	225	56
16	Gift Taste Helper	24997	492442	1891827	260	51
17	Winter Grass	20054	528420	1239987	426	38
18	Skull Cavern Elevator	20068	438305	1569241	279	46
19	CJB Show Item Sell Price	20041	379706	1576229	241	53
20	Events Expansion	164	6859	39459	174	24
S.No	Mod Name	Endorsements	Downloads	Total no.of views	Downloads (per 1000 views)	Endorsements (per 1000 downloads)
21	Farm Animal Facelift	161	5761	24225	238	28
22	SH's Wild Animals	80	2371	17092	139	34
23	Idaida's Furniture Recolor (For CP)	72	2924	15772	185	25
24	Magical Crops	31	1025	11409	90	30
25	DC Burger Style Ridgeside Village 5	44	1089	16642	65	40

	Bachelor Potraits					
26	Better Junimos Forestry	25	854	7524	114	29
27	Multi Biome Farm	19	729	8402	87	26
28	Gus's Recipe Book	27	902	6018	150	30
29	Flowing Mine Rocks	25	760	6971	109	33
30	Overgrown Fairy Cabins	13	676	4550	149	19
31	FQ Festival Tweaks	32	689	5576	124	46
32	Hay Silo Updated	11	433	3907	111	25
33	Community Center Helper	598	13239	59754	222	45
34	Ellie's Ideal Greenhouse	762	16424	78222	210	46
35	Pregnancy and Birth Events	346	9844	80651	122	35
36	Chargeable Axe and Pickaxe	384	9732	44001	221	39
37	Visible Fish - See Catchable Fish in the Water	323	11456	50813	225	28
S.No	Mod Name	Endorsements	Downloads	Total no.of views	Downloads (per 1000 views)	Endorsements (per 1000 downloads)
38	Underground Secrets	352	6253	54348	115	56

39	Character Customization Anywhere	305	8208	35991	228	37
40	Vibrant Pastoral Recolor for SVE	269	6214	51101	122	43
41	Let Me Rest	377	7583	28448	267	50
42	Gwen's Paths	302	7482	35114	213	40
43	Map Teleport	205	5808	26629	218	35
44	Allow Beach Sprinklers	214	7065	25282	279	30
45	(CP) Victorian Craftables	222	6641	36442	182	33
46	Ore Increase	247	6372	27053	236	39
47	Platonic Partners and Friendships	278	3798	45931	83	73
48	Balloon Ride	143	5267	23282	226	27
49	Community Center Reimagined	316	6630	60023	110	48
50	Simple Fishing	337	9884	40345	245	34

APPENDIX 4 – Classification of Stardew Valley Mods (Gratification)

S.No	Mod Name	Mod Details	Type of Gratification
1	Female Farmer Overhaul	New edited clothing (112 shirts, 5 pants), 54 new hairstyles, dynamic sleeves, brighter hairstyle, new shoe colours, new skin colours, redone accessories	Content Gratification
2	Immersive Shops - Pierre	Changing merchandise variety at Pierre's store based on seasons and duration of play.	Content Gratification
3	Fish Ponds Rebalanced	Faster spawn rates for fish, rebalancing of pond populations, balancing output of lava yields to gold output, other modified dynamics for ponds.	Content Gratification

4	Stardew Valley Expanded	More than 30 hours of new content (additional NPCs, dynamic dialogue, new personalities, in game events, backstory for various new characters)	Social Gratification
		Expansion of the Joja storyline – where the player's actions determines Joja's takeover of Stardew Valley.	Content Gratification
		Addition of 2 farm maps and 32 new in game locations, which are tied to in game progression and completion of questions. Addition of up to 850 new location message based on exploration of the world of Stardew Valley.	Content Gratification
		Addition of 18 new fish with new catch locations, difficulty, selling price and new world map	Content Gratification
5	NPC Map Locations	Tracking NPC's and other players within the game, changing maps based on seasons, multiplayer support, provision of location for farm buildings, show/hide characters based on relationship, relevant quests or approaching birthdays.	Process Gratification
6	Stardew Valley Anime mods	Modifications in portraits of NPC love interest and other NPC portraits	Process Gratification
7	Content Patcher	Loading content packs that alter the game's images and data without replacing XNB files.	Technology Gratification
8	Stardew Valley Mod API (SMAPI)	Official Mod loader/launcher for Stardew Valley	Technology Gratification
9	CJB Cheats Menu	Cheats menu with a range of cheat pertaining to relationship with game characters, modifying player's in game character attributes etc.	Process Gratification
10	CJB Item Spawner	In-game item spawner menu that helps a player bypass the resource requirements for crafting new/advanced items	Process Gratification
11	Lookup Anything	Informational mod that allows the player to quickly understand NPC preferences, crop cycles etc.	Content Gratification
12	Tractor Mod	Allow purchase of a tractor that speeds up farming and clearing activities.	Content Gratification

13	Automate	Allows placement of a chest next to a furnace/crystalarium and allows automatic transfer of raw materials/ores into the machines and transfer of processed goods back into the chest. Allows the link of a chest to multiple machines.	Content Gratification
14	Farm Type Manager (FTM)	Allows custom creation of forage, ore deposits, boulders, meteors, monsters at any location within the game.	Content Gratification
15	UI Info Suite	Provides in game notifications of events around the character within the game.	Content Gratification
16	Gift Taste Helper	Provides a guide regarding an NPC's favourite gifts when looking their birthday on the in game calendar or the social page.	Content Gratification
17	Winter Grass	Allows grass to survive during the winter season, a feature not available in the original game.	Content Gratification
18	Skull Cavern Elevator	Provides an elevator that directly connects to the Skull Cavern	Content Gratification
19	CJB Show Item Sell Price	Allows viewing of the sell price of items in the player's inventory.	Content Gratification
20	Events Expansion	Additional of new heart events for the villagers/NPCs	Process Gratification
21	Farm Animal Facelift	Additional sprites and a new art style for barn and coop animals, with several breed and colour options.	Content Gratification
22	SH's Wild Animals	Allows placement of wild animals to the game based on player preferences.	Process Gratification
23	Idaida's Furniture Recolor (For CP)	Furniture recolour with additional themes	Content Gratification
24	Magical Crops	Addition of 7 magical crops with 8 quests and a minor story consisting of 4 events. Seeds for these crops arrive via mail, through events or as quests. Additional seeds can procured at the wizards Tower through the seed chest. Magical crops produce strange properties during their growth.	Content Gratification

25	DC Burger Style Ridgeside Village 5 Bachelor Potraits	Top resolution portraits of Ridgeside Village bachelors (Ian, Shiro, Philip, Jeric, Kenneth), made to fit with DCBurger's Portrait style. Also includes beach portraits.	Content Gratification
26	Better Junimos Forestry	Junimos, special creatures within the game will maintain the player's fields, plant wild trees for harvesting wood, care for the player's fruit trees, clear debris, and help mow lawns.	Process Gratification
27	Multi Biome Farm	Multiple farm types with numerous quality of life changes and renewable forage items.	Content Gratification
28	Gus's Recipe Book	Unique recipes from Gus' shop inventory by the new feature of a recipe book from the Stardrop Saloon. Players can purchase recipes from the book instead of paying Gus directly. Features additional mods.	Process Gratification
29	Flowing Mine Rocks	Similar mine rocks get connected into a single flowing rock that shrinks as the player breaks it apart	Content Gratification
30	Overgrown Fairy Cabins	Add cut/decorated fairy cabins.	Content Gratification
31	FQ Festival Tweaks	Allows the player to return home when the festival actually ends (not at midnight). Allows the player to continue with their regular activities for the day.	Process Gratification
32	Hay Silo Updated	Provides a new hay stack silo as opposed to the tall, wooden domed silo in the original game.	Content Gratification
33	Community Center Helper	Provides in-game suggestions in findings items for completing Community Center bundles when you hover over them in the menu	Process Gratification
34	Ellie's Ideal Greenhouse	Expanded greenhouse with 3 layout options based on the gamer's play style.	Content Gratification
35	Pregnancy and Birth Events	Adds an event where the player's in-game spouse finds out that you are pregnant. New event when the player's character or their spouse gives birth.	Process Gratification
36	Chargeable Axe and Pickaxe	Modified Axe and Pickaxe with similar properties like the hoe and the watering Can. Holding the tool button allows charge up that affects the tiles in surrounding area.	Content Gratification

37	Visible Fish - See Catchable Fish in the Water	Reveals fish that are currently catchable in the water.	Content Gratification
38	Underground Secrets	New shrines, alters, riddles, traps, caverns and fungal flora.	Content Gratification
39	Character Customization Anywhere	Allows alteration to the player's character appearance anywhere within the game.	Process Gratification
40	Vibrant Pastoral Recolor for SVE	Additional Vibrant Pastoral Recolor content pack	Content Gratification
41	Let Me Rest	Allows stamina recovery when seated, riding and stopped.	Process Gratification
42	Gwen's Paths	Retextures/recolours of paths and floorings (crafted).	Process Gratification
43	Map Teleport	Allows fast travel to any labelled location in the game map.	Content Gratification
44	Allow Beach Sprinklers	Allows placement of sprinklers on the beach farm.	Content Gratification
45	(CP) Victorian Craftables	Craftables inspired by Eemie's Victorian Buildings.	Content Gratification
46	Ore Increase	Increase the chances of ore being placed on the map by up to three times.	Process Gratification
47	Platonic Partners and Friendships	Allows choice of marriage candidates for a platonic relationship and edits all their romantic 8+ heart dialogues, to resemble a close friendship. Features a detailed and customizable platonic partnership option as an alternative to marriage.	Social Gratification

48	Balloon Ride	Allows the player's character to invite an NPC they are dating on a balloon ride, by calling them on their mobile phone.	Content Gratification
49	Community Center Reimagined	Changes NPC schedules on rainy days, where selected groups of NPCs visit the Community Center for socialize gatherings. Kids lessons can be moved into the Crafts room and allows for custom teachers. Adds fish to the tank	Social Gratification
50	Simple Fishing	Make the fishing mini-game simpler. as it attempts to make all the fish easy to catch, with little to no effort.	Process Gratification

APPENDIX 5 – Categorization of fields for non-parametric tests

	Endorsements	Downloads	Total no. of views
Quartile 1	80	2924	17092
Quartile 2/Median	323	7583	45931
Quartile 3	24997	492442	2101948

Mod Name	Endorsements	Endor Quart	Downloads	Downloads Quart	Total no.of views	Total views Quart
Female Farmer Overhaul	39	1	1915	2	12892	1
Immersive Shops - Pierre	34	1	1073	2	12192	1
Fish Ponds Rebalanced	32	1	1312	2	7875	1
Stardew Valley Expanded	25,079	4	5,28,263	4	54,88,866	4
Stardew Valley Expanded	25,079	4	5,28,263	4	54,88,866	4
Stardew Valley Expanded	25,079	4	5,28,263	4	54,88,866	4
Stardew Valley Expanded	25,079	4	5,28,263	4	54,88,866	4
NPC Map Locations	54,002	4	10,49,475	4	48,69,578	4
Stardew Valley Anime mods	9,139	3	2,59,170	3	21,75,382	4

Content Patcher	62,271	4	12,79,673	4	53,42,346	4
Stardew Valley Mod API (SMAPI)	54,153	4	12,64,766	4	56,18,397	4
CJB Cheats Menu	50,528	4	9,70,641	4	58,47,176	4
CJB Item Spawner	45,560	4	8,41,007	4	39,15,531	4
Lookup Anything	33,570	4	5,59,939	4	28,32,173	4
Tractor Mod	26,170	4	5,71,661	4	25,51,390	4
Automate	27,208	4	4,29,432	3	23,77,161	4
Farm Type Manager (FTM)	20,453	3	5,35,379	4	14,97,300	3
UI Info Suite	26,276	4	4,73,015	3	21,01,948	3
Gift Taste Helper	24,997	3	4,92,442	3	18,91,827	3
Winter Grass	20,054	3	5,28,420	4	12,39,987	3
Skull Cavern Elevator	20,068	3	4,38,305	3	15,69,241	3
CJB Show Item Sell Price	20,041	3	3,79,706	3	15,76,229	3
Events Expansion	164	2	6,859	2	39,459	2
Farm Animal Facelift	161	2	5,761	2	24,225	2
SH's Wild Animals	80	1	2,371	2	17,092	1
Idaida's Furniture Recolor (For CP)	72	1	2,924	2	15,772	1
Magical Crops	31	1	1,025	2	11,409	1
DC Burger Style Ridgeside Village 5 Bachelor Potraits	44	1	1,089	2	16,642	1
Better Junimos Forestry	25	1	854	2	7,524	1
Multi Biome Farm	19	1	729	2	8,402	1
Gus's Recipe Book	27	1	902	2	6,018	1
Flowing Mine Rocks	25	1	760	2	6,971	1
Overgrown Fairy Cabins	13	1	676	2	4,550	1
FQ Festival Tweaks	32	1	689	2	5,576	1
Hay Silo Updated	11	1	433	2	3,907	1
Community Center Helper	598	3	13,239	3	59,754	3

Ellie's Ideal Greenhouse	762	3	16,424	3	78,222	3
Pregnancy and Birth Events	346	3	9,844	3	80,651	3
Chargeable Axe and Pickaxe	384	3	9,732	3	44,001	2
Visible Fish - See Catchable Fish in the Water	323	2	11,456	3	50,813	3
Underground Secrets	352	3	6,253	2	54,348	3
Character Customization Anywhere	305	2	8,208	3	35,991	2
Vibrant Pastoral Recolor for SVE	269	2	6,214	2	51,101	3
Let Me Rest	377	3	7,583	2	28,448	2
Gwen's Paths	302	2	7,482	2	35,114	2
Map Teleport	205	2	5,808	2	26,629	2
Allow Beach Sprinklers	214	2	7,065	2	25,282	2
(CP) Victorian Craftables	222	2	6,641	2	36,442	2
Ore Increase	247	2	6,372	2	27,053	2
Platonic Partners and Friendships	278	2	3,798	2	45,931	2
Balloon Ride	143	2	5,267	2	23,282	2
Community Center Reimagined	316	2	6,630	2	60,023	3
Simple Fishing	337	3	9,884	3	40,345	2