

# Crafting is So Hardcore

## Masculinized Making in Gaming Representations of Labor

Anne Sullivan

StoryCraft Lab, Georgia Institute of  
Technology, Atlanta, GA, USA  
unicorn@gatech.edu

Mel Stanfill

Games and Interactive Media,  
University of Central Florida,  
Orlando, FL, USA  
mel.stanfill@ucf.edu

Anastasia Salter

Games and Interactive Media,  
University of Central Florida,  
Orlando, FL, USA  
anastasia@ucf.edu

### ABSTRACT

In this paper we examine the representation of crafts in video games, particularly in “crafting systems” – collections of mechanics that are described as crafting within a game’s narrative. Real world crafting practitioners value creativity, expression, and mastery of material, but the act of crafting itself is often viewed by society as reproductive, feminized labor and therefore devalued. Because of this, crafting systems in games have been designed to more closely resemble masculinized, productive labor in the form of repetitive, manufacturing-like mechanics. These representational choices persist even across games lauded for their crafting systems, as our analysis demonstrates. Through an examination of both user-generated tutorials and game mechanics for three games that frequently appear on “best crafting games” lists, we show that games persist in devaluing the reproductive labor of crafting, reducing creative expression and material mastery to marginal and repetitive tasks while catering to the palates of masculine gamers by emphasizing stats-driven progression rather than creative making.

### CCS CONCEPTS

• **Applied computing** → Computers in other domains; Personal computers and PC applications; Computer games.

### KEYWORDS

Crafts, craft systems, labor, casual games, craft games, feminist games criticism

#### ACM Reference Format:

Anne Sullivan, Mel Stanfill, and Anastasia Salter. 2020. Crafting is So Hardcore: Masculinized Making in Gaming Representations of Labor. In *International Conference on the Foundations of Digital Games (FDG '20)*, September 15–18, 2020, Bugibba, Malta. ACM, New York, NY, USA, 8 pages. <https://doi.org/10.1145/3402942.3402976>

## 1 INTRODUCTION: CRAFT AND GAMES

Which activities fall under the term “craft” is a long-standing debate, but Frayling uses the common-sense definition of craft: “an activity which involves skill in making things by hand” [13]. Contemporary

craft research considers this definition to be fairly reductive, but nevertheless it is the one commonly used by designers when modeling crafting in their game worlds. Because of the virtual nature of video games, the definition must be further simplified by removing the “by hand” modifier. Thus, the focus becomes “skillfully making things,” as shown in the definition of crafts in games by Grow, et al. as “the thoughtful manipulation of materials by the player to create something else within the context of the game” [17]. This type of crafting has been part of video game play since at least the earliest text games, such as when Zork I [21] required players to use coal with a machine to create a diamond. However, craft mechanics are often supplementary to core game mechanics, and thus have not attracted much scholarly attention. In sidelining craft, we overlook opportunities to expand our definition of play and how it relates to games, as well as to rethink our relationship to the labor of that play.

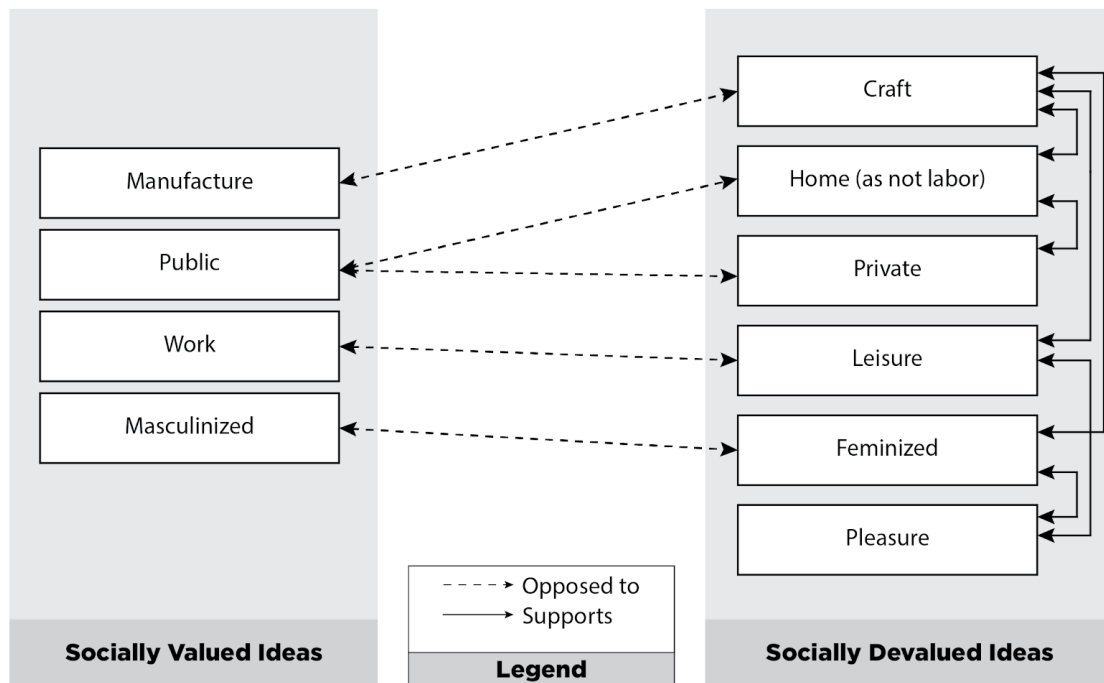
In their call for an investigation of the intersection of games and crafting, Sullivan and Smith point towards the potential value of craft as a disruption of the norms of games: “Craft is a constructive, social, and creative form of play that has become increasingly feminized. In contrast, games are traditionally masculinized and stereotyped as featuring conflict-heavy, destructive play” [34]. Sullivan, Salter, and Smith further observe that, unlike those identified as “gamers,” the real-world games played among crafters frequently center creative expression [33]. Adamson suggests another important theme – materials – and identifies it as one of the five core tenets of crafting [1]. Indeed, crafts are most known for being material; as Adamson notes, “craft always entails an encounter with the properties of a specific material” [1]. Furthermore, the definition of each craft form involves specific materials that are being manipulated: cooking is making with food; quilting, with fabric; gardening, with plants. As Adamson points out, craft invites us to consider the material in our relationship with the crafted object.

Although creative expression and materiality are identified as core value of real-world crafts, the majority of craft systems in games do not even begin to incorporate these values. Frequently the act of making in games is represented as a time bar or animation cycle without requiring player action or is removed entirely from the game. These reductive representations diminish craft to something that happens, rather than an embodied act of creative, expressive, and material-based making. If crafting in games is defined as skillfully making things, the skills in question here are the *player character’s* skills, not the player’s expertise of material manipulation or their own creative skills. This misrepresentation of craft reflects larger challenges of gendered and racialized labor

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than the author(s) must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from [permissions@acm.org](https://permissions.acm.org).

FDG '20, September 15–18, 2020, Bugibba, Malta

© 2020 Copyright held by the owner/author(s). Publication rights licensed to ACM.  
ACM ISBN 978-1-4503-8807-8/20/09...\$15.00  
<https://doi.org/10.1145/3402942.3402976>



**Figure 1: Craft is often associated with socially devalued concepts (on the right) and opposed to those which are valued socially (on the left) such that its low social status is overdetermined. Figure adapted from Stanfill [32].**

in games spaces, and the way this labor is valued – and devalued – within communities of play and game-making.

## 2 CONTEXTUALIZING CRAFT AND GENDERED LABOR

In the Global North, craft was historically the primary mode of production and performed by everyone as part of the family economy.[5] This changed with industrialization, as work moved outside the home and manufacture came to be associated with productive labor, the public – and masculinity. Subsequently, work done in the private sphere was not economically valued (i.e., was not productive labor), was associated with reproductive labor (the labor of reproducing the worker’s labor power), and was disproportionately done by women – all of which combined to associate it also with social devaluation [14]. Stanfill’s analysis on socially valued and devalued ideas (simplified in Figure 1) shows craft related to ideas of home, leisure, and feminization – all of which are devalued, while being in opposition with manufacture which is valued [32].

This fundamental division still persists, particularly in households in which crafting is viewed as leisure and not a required part of the family economy. It underlies assumptions of men’s competency in spaces such as the design workshop – noted more than twenty years ago by Clegg and Mayfield [8]. This division has led to the current dominant ideology of art and design as public-facing, professionalized, and masculinized. As Hughes notes in her examination of the shifting status of jewelry designers:

Certainly, women form the majority of amateur craft producers and the majority of students in art schools and in professional practice. . . however, devaluation occurs through other systemic processes. This includes processes of feminisation whereby the status of specific industries become diminished because of the larger proportion of women working in them. . . There have, for example, been long-standing debates that the separation of craft from fine art has been a major force in the marginalisation of women’s work [19].

The difference in how feminized versus masculinized craft forms are viewed can be seen not just in traditional crafts such as wood-working but also in more recent maker spaces such as 3D printing. In both cases, these craft forms are conceptualized as productive by society. With the rise of consumerism, the norm increasingly became for formerly crafted items to be purchased, positioning home production (largely done by women in the Global North) as a superfluous, economically unproductive, private, pleasurable craft. It is thus no coincidence that crafting is frequently associated with the domestic sphere, or that the growth of craft-centered hobby stores (e.g. JOANN Fabric & Craft, Michaels, and Hobby Lobby) corresponds with pushes for women to build the value of their “thrifty” domestic labor through craft, and correspondingly, the consumption of craft supplies [12].

Given the devalued status of craft, it is perhaps unsurprising that crafting systems in games (an often-masculinized domain) minimize

the reproductive labor aspects of crafting, instead representing it as productive labor tied to manufacture. The labor of craft-centered play is repetitive and often time-sensitive, the kind of gameplay sometimes referred to, with derision or enthusiasm, as “grinding.” The use value of a product is often less important than its exchange value: skill progression or in-game trade. Some games with an apparent craft focus even eliminate the act of craft entirely, focusing solely on the labor that surrounds it: cooking games like *Cooking Mama* [35] and the *Overcooked* series [16] emphasize the repetitive actions of preparing ingredients, not the creative aspects or the material nature of the craft of cooking.

Crafting systems have become popular additions to mainstream games, including many computer role-playing games such as *The Witcher 3* [6] and action/adventure games such as *Horizon Zero Dawn* [18]. Crafting systems are popular enough that they are also the foundation of an entire game genre – survival games such as *Don’t Starve* [22] and *Minecraft* [27] are built around gathering resources and crafting items appropriate to basic needs and facing environmental challenges. This style of crafting system and gameplay places an emphasis on the imperiled body and its fragility [26] rather than the creative aspects or materials being used. There are games that forefront specific crafts, such as *Style Lab: Jewelry Design* [36] and the aforementioned *Cooking Mama*, which simulate aspects of jewelry-making and cooking respectively. However, such games are often considered “casual,” largely due to their association with users that are viewed as outside the primary demographic of games [7] and therefore socially devalued by the gaming community.

### 3 METHODS

Given the many possible games with crafting systems that could be included in our study, we have chosen to focus primarily on mainstream games. The concept found within these games reduces craft to economic value and forces it into a hardcore, masculinized model of play. Focusing on mainstream games allows us to consider how this pervasive and particular narrow concept of craft has developed and been reinforced through conventional and well-known computer games.

In our analysis, we focus on the crafting systems from three games: *World of Warcraft*, *Stardew Valley*, and *Minecraft*. We chose these games due to their popularity and recurring placement on user-voted “best crafting game” lists, and the fact that they involve craft systems with increasingly central roles. While a full taxonomy of crafting games is beyond the scope of the paper, these three games demonstrate a diversified sampling of approaches within games classified as “crafting games.” With each game, we look at fan-created crafting tutorials as sites where gamers make sense of craft mechanics. We also examine the language, framing, and mechanisms of craft as represented in the game, while considering how crafting is constructed (and reduced) by these portrayals.

Ultimately, we argue that as a result of crafts being viewed as reproductive labor (and therefore feminized and devalued), the concept of craft within game crafting systems is distorted to more closely resemble productive labor. In eschewing the properties of real-world crafting, these systems lose out on a form of popular creative play that could provide a strong foundation for novel games and mechanics. To better understand how craft is misrepresented

in games, we turn to our case studies and data gathered from top tutorials for each of our cases. All tutorial spelling and grammar is reproduced as-is, with emendations in brackets as needed for clarity.

### 4 WORLD OF WARCRAFT: CRAFTING AN ECONOMY

Released in 2004, Blizzard Entertainment’s *World of Warcraft* (WoW) [4] is one of the most successful and longest-lasting games of all time [30] and remains the definitive example of a massively multiplayer role-playing game (MMORPG) in an ecosystem where subscription-based gaming is on the decline. WoW’s craft system has been modified and expanded over the 15+ years of the game’s existence, but its roots are still firmly in the stats-driven, mechanized system of fellow Blizzard game series, *Diablo* [3].

The crafting system style used in *World of Warcraft* is common among computer role-playing games and other stats-driven systems. In these systems, players must first gather crafting materials, such as ore or leather, from killing enemies or gathering them from specific places in the world. To use the materials, the player must find or buy patterns (sometimes called recipes) which enable the player to make a specific item described by the pattern. Each pattern or recipe has a particular set of materials required to create the item. Once the player has found the pattern for a specific item and has obtained the materials to create, they use a crafting UI to “craft” an item (see Figure 2). Creating the item uses up the materials listed by the pattern. Each pattern often has an associated skill-level requirement and creating items with a requirement close enough to the player character’s current skill level is how that skill level increases.

The sheer scale of *World of Warcraft*’s conception of craft is impressive, including tailoring, jewelry crafting, potion making, blacksmithing, leather crafting, and even inscription alongside gathering-driven professions that serve primarily to provide materials for the crafts. These are typical crafts for loosely historical fantasy settings like that of WoW which, similar to their kindred phenomena of re-enactment groups and pseudo-historical simulation play such as Renaissance festivals or the Society for Creative Anachronisms, often romanticize masculinized models of apprenticeship and mastery, as well as a reliance on localized expertise [9]. Perhaps because of the popularity of these models among the target demographic of most MMORPGs, crafting has always been popular in *World of Warcraft*. Many players create “alts” – alternate characters not used for standard play – and level up their crafting skills specifically to make high-level gear for their “mains” – characters used to play the primary game.

Given the broad scope of crafting in WoW and the popularity of the system, we chose this as an exemplar of fantasy-based crafting systems. Due to the sheer size of the crafting system, we concentrate on tutorials specifically for tailoring; it is one of the first professions introduced to the game and one of the most clearly connected with a real-world physical craft, which lends itself to our approach. A Google search for “Tailoring Guide WoW” yields over two million results, of which we primarily concentrated on the first ten, all from popular WoW fan sites.

The Icy Veins “Tailoring Profession and Leveling Guide” is the only tutorial in the top ten that takes time to describe the profession:



**Figure 2: The base tailoring UI in World of Warcraft shows the pattern-based nature of the crafting system and the manufacturing focus of making products. In particular the ability to create a specific number of that item or “create all” which allows the user to create as many as they have reagents for highlights the manufacturing-style crafting system.**

“[t]ailoring is the WoW Classic profession that focuses on crafting light armor items known as Cloth Armor and bags, using several different types of raw clothes that drop from mobs around Azeroth, making Tailoring one of the few professions that does not need a gathered resource, except occasional leather from Skinning” [20]. It is particularly notable in this description that its emphasis is on manufacturing; it captures perfectly how reductive of the game’s model of crafting is. Cloth goes in, cloth armor and bags come out.

The remainder of the *Icy Veins* guide uses a framework of repetitive play that is common among the tutorials we studied. It places most of the emphasis on sourcing patterns, which in early World of Warcraft were primarily found as loot after killing monsters. This is a fascinating logic: learn how to craft wizard robes by finding a pattern on a dead enemy, or perhaps the implied action is deconstructing the dead enemy’s garb to craft one’s own. However, as patterns are simply consumed and knowledge of how to employ them is immediate, even this mechanic has little relation to offline crafting. The emphasis on the pattern as a droppable item also implies complete, written knowledge, rather than the community-driven and education-centered practices Sullivan, Salter, and Smith show are common in craft communities [33].

The very titles of many guides reveal their emphasis: the word “leveling” appears in half, constructing craft through the lens of “hardcore” grinding mechanics. The *WoW-Professions* guide opens with the promise of “the fastest and easiest way” to level one’s skill, and places the emphasis on the cheapest recipes for leveling up [39]. In fact, there is no discussion of the objects made whatsoever, the guide instead focuses on the task that has been made most difficult by the game designers – sourcing materials and finding the appropriate vendors or quest givers required to proceed in raising the skill level.

Disregard for the materials involved in crafting is most noticeable in the “World of Moudi” guide [40]. It opens with a warning regarding the investment the craft requires: “You will need thousands of cloths if you want to level Tailoring. It will cost thousands of gold to buy the cloths, or if you farm them, it will take a lot of time to farm everything. . . Keep in mind, this Tailoring guide is made to level your profession as fast as possible, so sometimes the cloths you will make might not be the best items for your level or they won’t be really profitable if you want to sell them.” This is a stark contrast to the importance of material and its manipulation to craft practitioners in real life.

The “Warcraft Tavern” tutorial explains one of the major draws to crafting in World of Warcraft – utility to the player and others: “[t]ailoring is fairly useful, not only because of the bags, but also because they can create powerful cloth armor. Some of the best armor in the game is made through crafting, and without a maxed tailoring level, you won’t be able to learn the recipes! And who can forget the beloved runecloth bag, the best bag you’ll have until you get really lucky!” [15] The repeated emphasis on bag-making is particularly telling; useful to all, and allowing players to gather and store more and more items, bags are the universal inventory extension mechanism in WoW. The introduction of a new expansion (and new size of bags) incentivizes tailors to level quickly to sell bags to players without crafting skill. Economic utility is thus central to understanding the craft of tailoring in WoW, tying it fully to productive labor.

Such tutorials reflect the fact that creative expression and material mastery are not a part of World of Warcraft’s crafting system. Every time a player successfully uses a pattern, the same item is created, with no aesthetic differences or choices. Similarly, cloth gathered from killing enemies is picked up and used as-is, magically ready to use and incorporate with other scraps the player has gathered into full-cloth, unified garments. While thread is sometimes a required resource, there is no consideration to aesthetics or utility; the specific type of thread required is based only on the level of the item being created. The garments, once completed, hold no aesthetic traces of their material’s origin: the color, texture, or drape, has no consistency between what is gathered and what is produced. Moreover, the game omits any primary sources of fabric. Some games have incorporated this into their professions: for example, *Final Fantasy XIV* [31] incorporates a weaving guild, thus more directly taking the player from yarn to cloth. By omitting any requirement that the player work in a particular crafting space, WoW by contrast completely eliminates the sense of fiber’s materiality. Presumably, the character who specializes in tailoring is carrying around needles and thread while dedicating in-game minutes to





**Figure 3: The crafting system in Stardew Valley has preset recipes similar to WoW, but the items that are crafted often directly improve the player’s ability to gather materials for use in other patterns.**

turning cloth fragments into garments, but this is never represented in the game, nor shown on screen.

It is irresponsible to discuss the labor representation in the crafting system but not talk about World of Warcraft’s notoriousness as its own site of real-world industrialized labor. “Gold-farming” – the act of playing a game specifically to gather in-game resources for real-world monetary compensation – is frequently found in MMORPGs. In particular, World of Warcraft’s gold farming often revolves around collecting and selling crafting supplies. This form of gold farming is supported precisely because the crafting system is reduced to manufacturing; one player’s repetitive play for levels is another’s source of employment [10]. Furthermore, the division of play and labor in this discourse is often drawn along racialized lines, as Nakamura notes in her examination of WoW: “player resentment against Asian ‘player workers’ results in a continual process of profiling other avatars to determine their status as ‘legitimate’ leisure players or as unwanted ‘farmers’” [23]. In such ways, crafting in WoW is fully subsumed by a “hardcore” leveling framework which emphasizes efficiency of effort vs reward, and leaving no room for creativity, expression, or skilled material manipulation.

## 5 STARDEW VALLEY: CRAFTING A LIVING

Unlike World of Warcraft, Stardew Valley [2] is a highly-customizable single-player game. Released in 2016 by Eric Barone, the game centers on an imagined, utopian, domestic space; players enter a village, form relationships, and work on an indefinitely progressing farm with no strongly defined goals. While combat is minimally present, it is not central to play the way as it is in WoW. Combat isn’t required to progress, and useful crafted items do not exist primarily to augment combat skills.

In Stardew Valley, the crafting system is central to play. Much of the day-to-day tasks in the game involve getting materials and using them in recipes, many of which are used to create or facilitate gathering more materials. For example, using forty wood and two copper bars will create a tapper, which when used on a tree will slowly produce syrup. The syrup can then be used in cooking recipes or to create a beehive, and the beehive in turn slowly creates honey over time, etc. Ultimately, most crafted items are economically productive and used in the service of getting money or other items to be able to create more complex and expensive items.

Even with these differences, the crafting system in Stardew Valley is pattern-based (see Figure 3), similar to World of Warcraft. Because of this, the crafting system has many of the same shortcomings with regard to creative expression and lack of material focus. However, unlike the combat- and economic-centric method of gathering patterns in WoW, patterns in Stardew Valley are unlocked as the player character explores and gains skills in the game. This begins to minimize “hardcore,” grinding styles of manufacturing labor in the crafting system, although the economic focus is still prevalent. Indeed, repetition is irrelevant to this system: unlike WoW, the player is not rewarded for making the same item over and over. However, the player’s skills do level up through continual activity, with higher level skills making the player character more efficient with the specialized tool for that task. The “Stardew Valley Wiki”, one of the top (and most robust) tutorial results for “Stardew Valley crafting tutorial,” captures this in the skills table as shown in Table 1 [41].

Stardew Valley also explores materials in a slightly deeper fashion than many recipe-based craft systems by tracking an item’s quality level. While the pattern-based nature of the system doesn’t

**Table 1: Stardew Valley character skills and descriptions.**

Skill	Benefits for each level
Farming	Levels are gained by harvesting crops and caring for animals. Each level grants +1 hoe and watering can proficiency.
Mining	Mining skill is increased by breaking rocks (normally done with a Pickaxe). Each level grants +1 pickaxe proficiency.
Foraging	Foraging skill includes both gathered foraged goods, and wood from trees chopped with an axe tool. Each level grants +1 axe proficiency.
Fishing	Fishing is associated with successfully completing the fishing mini-game or catching fish in a Crab Pot, increasing the fishing skill. Each level grants +1 fishing rod proficiency.
Combat	Combat is a skill tied to the player's ability to fight against monsters.

allow the player to experiment with different materials, the ranges in quality means that the player can use better materials to craft better items that in turn can be sold for more money or, in the case of food, provide more benefits.

Crafted objects in Stardew Valley are frequently split into two categories: functional or decorative. Functional items are then divided further by role: bombs enable mining, fertilizers increase the viability and output of the soil, consumables restore health, etc. Decorative items are unnecessary for progress in the game but are transformative to the look of the player's farm and include everything from paths to lighting. The Stardew Valley Wiki breaks their discussion of crafts into the following seventeen categories: Bombs, Fences, Sprinklers, Artisan Equipment, Fertilizer, Seeds, Decor, Fishing, Rings, Edible Items, Lighting, Refining Equipment, Furniture, Misc, Achievements, Crafted goods outside the farm, and History [41]. This categorization highlights the fact that the game has a large number of functional item patterns compared to the few decorative patterns which are primarily found under Decor.

The success of Stardew Valley illustrates that there is strong interest in games that incorporate the values found in crafting. However, the crafting system still falls short; its pattern-based nature leaves little room for creative expression, and no room for material experimentation and skill. Interestingly, the layout of player's farms has more in common with real-world crafts than the in-game crafting system. Articles such as "8 Best Stardew Valley Farm Layouts" [28] as well as Reddit threads and Pinterest boards dedicated to beautiful and interesting farm layouts demonstrates the range of creative expression in selection and placement of materials (e.g. buildings, equipment, crops, animals, etc.) Similarly, the popularity of the layout planner [38] and numerous discussion threads on Reddit and other forums focused on optimization and efficiency of farm layout highlights the expertise in the materials required to create a well-run virtual farm. It is therefore even more noticeable that while creativity and skill with material manipulation are present (and enjoyed by players), they are not found within the crafting system itself.

## 6 MINECRAFT: CRAFTING A WORLD

The impressively popular Minecraft was launched in 2011 and quickly became one of the best-known craft game exemplars. In Minecraft, players explore the world and gather raw materials that they then use to craft structures, tools, and other items. There are two main game modes: Survival, which includes enemies, hunger, and limited health; and Creative, which has no enemies and gives the player unlimited resources. Both modes rely almost entirely on the crafting system for progression.

At a basic level, Minecraft, like the other games we've discussed, has a craft system that combines certain raw materials in a fixed recipe. The tutorials found on Minecraft-crafting.net [42] highlight many categories that overlap with the other examples we've discussed earlier. Tools, defensive items, food, dyes, and wool are all available, and a vague category of "other" items includes some decorative items (such as carpet), alongside functional items (such as a carrot on a stick).

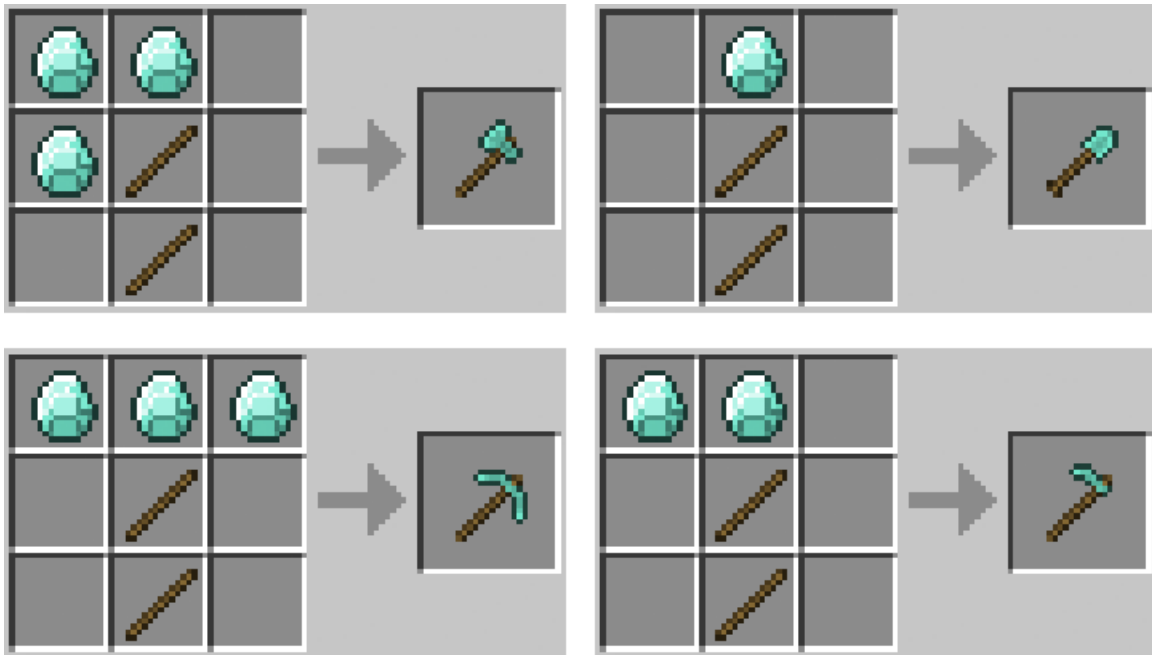
However, unlike the other games we've discussed, Minecraft does not completely abstract the act of making into a single button press. Instead players create new items in a crafting interface, combining materials in a variety of 2x2 (and later 3x3) grid configurations (see Figure 4). Additionally, the crafting system within Minecraft is a core part of the game. While World of Warcraft's crafting system is completely optional and Stardew Valley has core crafting mechanics but also relies on other mechanics, Minecraft's world entirely consists of different "blocks" that can be collected and used in both the designated crafting system as well as for shaping and changing the landscape to imagine new (if highly blocky) worlds.

Not only is the world made of crafting materials, but crafting is necessary for progression: "the creativity. . . is not just something afforded by the game's elements, but is something integral for a player to proceed in creating anything within the game. And, more importantly, as one quickly discovers when the. . . sun completes its arc across the sky, the skillful recombination of items is a necessary part of the basic game" [11]. The detailed "Beginner's guide" for Survival Mode on Gamepedia's Minecraft Wiki further details this, as it explains to the player that crafting must be among the first moves taken in the game world:

As the first day begins, you will need to collect logs. First, you should look around for trees, and go towards any you find, and break their trunks by "punching wood" as discussed above. You need to collect at least 5-8 logs for your first round of tools and items you need immediately. You'll certainly want more a little later, but a few tools now will make collecting more wood go a lot more quickly [43].

Even with the crafting system at the core of the game, crafting in Minecraft's Survival mode is thus both deeply tied to productive labor and utility and linked into more traditionally "hardcore" mechanics of combat and survival.

However, Minecraft does allow for more attention to material and creativity through flexibility within its patterns than many other games. For instance, changing out spruce plank for cobblestone in the crafting grid can change a wooden item to a stone one, giving it



**Figure 4: The crafting system in Minecraft uses a grid system in which players place materials in different configurations that roughly mimic the shape of the thing they are creating. Here we see four different possibilities from the same set of materials. The final outcome is based on the number and configuration of the materials placed.**

more durability and effectiveness. Additionally, dyes can be made and used on some materials, adding aesthetic options to the overall creations. The dyes can be used together or on top of each other with different effects, creating combinatorial possibilities that the Minecraft Gamepedia notes result in over 12 million potential colors [44].

Minecraft also makes room for creative experimentation in that none of the patterns are given to the player, but instead must be found through trying different combinations in the crafting grid. However, like our previous two examples, the pattern-based system does not allow the player to create something that the designer had not considered beforehand. Likewise, it does not lead the player to gain knowledge or expertise about particular materials, but instead puts the focus on the patterns themselves. Moreover, because the combinations are built-in and finite, this type of crafting system can be (and has been) catalogued on user-created sites, removing what limited discovery there was available to begin with.

Far more than the crafting system itself, the crafting possibilities in Creative mode best resembles traditional craft, in that is designed to be shareable and reflective of the player's design intentions. Playing in creative mode removes the crafting grid entirely and gives players access to any block or item in unlimited quantities. Nguyen notes that these environmental builds rely on the coded physics of the system rather than a limited set of pre-designed patterns, which gives players much more room for creative expression. "Creativity in Minecraft is formally and procedurally articulated as the process of arranging existing game blocks outside of the game's crafting recipes, emphasizing that constructing new things is always about modding, remixing, and hacking what already exists or is known" [24].

It is perhaps not surprising that Minecraft also least resembles a traditional game out of our cases; it opens without tutorial or guidance, leaving the player to explore what Nguyen refers to as an island survivalist fantasy narrative of their own making. Similar to the aforementioned farm layouts in *Stardew Valley*, Minecraft player creativity is shown in the environments created, particularly in Creative mode. For instance, one distinctly dedicated player built a to-scale replica of the USS Enterprise [37] and another recreated the setting of *World of Warcraft* [29]. Duncan notes that the removal of the tension of survival in Creative mode also removes the urgency, and necessity, from crafting, leaving the player free to use the world's tools for modding but no longer bound by any sense of consequence to what is created [11]. This lack of tension leaves room for material exploration without fear of "catastrophic" failure such as having to restart the game.

While material exploration is very important to crafters, unlike its real-world counterpart, crafting in Minecraft rarely places any importance on which materials are used when crafting in the game beyond color and visual texture. In real-life craft, material is essential to the outcome, and the choice of precise material (as opposed to a category of material) is one of the most determining aspects of aesthetic outcome [1]. The same quilt pattern rendered in modern fabric versus 1800s reproduction print will have an entirely different look, and more pragmatically, the choice of batting will determine its functional ability to ward off the cold. This aspect of material choice is missing from all the craft systems in our case studies, where materials are typically categorized to neatly fit into recipe or aesthetic definitions. The physical spaces of craft shops (which are rarely, if ever, rendered in games and simulations) are a testament to the importance of material choice and practice, particularly in

fiber arts, paper crafts, knitting, and other feminine-coded craft spheres where the original material composition and coloring takes a primary role in determining the aesthetics produced.

## 7 CONCLUSION

Resolving the division between crafting and its representation in games is about more than changing a recipe system or extending player options for customization. Fundamentally, it is a question of reconciling values, which provides an opportunity for feminist intervention and a reimagining of labor in games. Craft practitioners value creative expression and material mastery; mistakes are expected, growth is individually sought and communally celebrated, and expertise is as much in the choice and preparation of materials as in the “action” of making. These values, and craft itself, are feminized and therefore devalued in popular discourse; stereotypes of the knitter as crazy cat lady, the quilter as grandmother, and so forth continue to propagate despite social media-based crafting communities attesting to the diversity of making and makers.

The craft systems included in mainstream games, despite the realities of a more diverse gamer audience, tend to be made for and by those who center traditional masculinized content. In catering to these audiences, designers tend to remove the devalued, feminized, properties, and instead center the relationship of craft to war, survival, and material advancement. The role of creative expression and material mastery is thus removed and replaced with tiered systems that encourage rapid production towards an end-point achievement. The type of labor, tied to manufacturing work and repetitive play, evokes the game metaphor of “grinding” rather than the rewards of improvement over time through trial and error.

Nevertheless, there is hope for reconciling this divide, although it tends to be found outside “crafting” systems and within creative or artistic play. Often this play is outside of the game’s central mechanics, and thus not tied to fixed criteria or rewarded with in-game advancement. This in turn provides players more room for creative expression, whether this is realized through the design of an ecosystem in *Stardew Valley*’s farm; the choices made in interior design in an *Animal Crossing* [25] home; or the building of whole imagined worlds in *Minecraft*’s Creative mode. Designers seeking to imagine the future of crafting systems should turn to these models, rather than the reductive patterns of the skills tree and recipe, to envision a type of crafting labor that can truly be rewarding, and in doing so challenge the normative construction of what is “hardcore.”

## REFERENCES

- [1] Glenn Adamson. 2007. *Thinking Through Craft* (10.1.2007 edition ed.). Berg Publishers, London; New York.
- [2] Eric Barone. 2016. *Stardew Valley*.
- [3] Blizzard Entertainment. 1997. *Diablo*.
- [4] Blizzard Entertainment. 2004. *World of Warcraft*.
- [5] Anthea Callen. 1984. Sexual division of labor in the arts and crafts movement. *Womans Art J.* 5, 2 (1984), 1–6.
- [6] CD Projekt. 2015. *The Witcher 3: Wild Hunt*.
- [7] Shira Chess. 2017. *Ready Player Two: Women Gamers and Designed Identity* (1 edition ed.). Univ Of Minnesota Press, Minneapolis.
- [8] Sue Clegg and Wendy Mayfield. 1999. Gendered by Design: How Women’s Place in Design Is Still Defined by Gender. *Des. Issues* 15, 3 (1999), 3–16. DOI:https://doi.org/10.2307/1511881
- [9] Michael A. Cramer. 2010. Medieval Fantasy as Performance: The Society for Creative Anachronism and the Current Middle Ages. Rowman & Littlefield.
- [10] Julian Dibbell. 2015. Invisible Labor, Invisible Play: Online Gold Farming and the Boundary between Jobs and Games. *Vanderbilt J. Entertain. Technol. Law* 18, (2016 2015), 419.
- [11] Sean C. Duncan. 2011. *Minecraft*, beyond construction and survival. *Well Play. J. Video Games Value Mean.* 1, 1 (January 2011), 1–22.
- [12] Marcia K. Farrell. 2018. Unraveling the Bonds between Grief and Fiber Arts in Contemporary Literature, or Why Must She Suffer to Stitch? *Stud. Pop. Cult.* 40, 2 (2018), 15–38. DOI:https://doi.org/10.2307/26582183
- [13] Christopher Frayling. 2012. *On Craftsmanship: towards a new Bauhaus*. Oberon Books.
- [14] Christian Fuchs. 2010. Class, knowledge and new media. *Media Cult. Soc.* 32, 1 (2010), 141–150.
- [15] Furious. *WoW Classic Tailoring Guide 1-300. Warcraft Tavern*. Retrieved February 3, 2020 from https://www.warcrafttavern.com/guides/wow-classic-tailoring-guide-1-300/
- [16] Ghost Town Games. 2015. *Overcooked*.
- [17] April Grow, Melanie Dickinson, Johnathan Pagnutti, Noah Wardrip-Fruin, and Michael Mateas. 2017. Crafting in Games. *Digit. Humanit.* Q.011, 4 (December 2017).
- [18] Guerrilla Games. 2017. *Horizon Zero Dawn*.
- [19] Christina Hughes. 2012. Gender, craft labour and the creative sector. *Int. J. Cult. Policy* 18, 4 (September 2012), 439–454. DOI:https://doi.org/10.1080/10286632.2011.592187
- [20] Icy Veins. 2019. Classic Tailoring Profession and Leveling Guide. *Icy Veins*. Retrieved February 3, 2020 from //www.icy-veins.com/wow-classic/classic-tailoring-profession-and-leveling-guide
- [21] Infocom. 1980. *Zork: The Great Underground Empire*.
- [22] Klei Entertainment. 2013. *Don’t Starve*.
- [23] Lisa Nakamura. 2009. Don’t hate the player, hate the game: The racialization of labor in World of Warcraft. *Crit. Stud. Media Commun.* 26, 2 (2009), 128–144. DOI:https://doi.org/10.1080/15295030902860252
- [24] Josef Nguyen. 2016. *Minecraft and the Building Blocks of Creative Individuality. Configurations* 24, 4 (December 2016), 471–500. DOI:https://doi.org/10.1353/con.2016.0030
- [25] Nintendo. 2001. *Animal Crossing series*.
- [26] Bernard Perron. 2009. The survival horror: The extended body genre. In *Horror Video Games: Essays on the Fusion of Fear and Play*. McFarland & Company, Jefferson, N.C., 121–143.
- [27] Markus Persson. 2011. *Minecraft*.
- [28] Leyla Resuli. 2019. 8 Best Stardew Valley Farm Layouts. *TheGamer*. Retrieved February 3, 2020 from https://www.thegamer.com/best-stardew-valley-farm-layouts/
- [29] Rumsey. 2012. Crafting Azeroth. *Minecraft Forum*. Retrieved February 3, 2020 from https://www.minecraftforum.net/forums/show-your-creation/screenshots/1595918-crafting-azeroth
- [30] Logan Sawyer. 2019. Ranking The 10 Best MMORPGs Of All Time. *The Gamer*. Retrieved February 3, 2020 from https://www.thegamer.com/best-mmorpgs-ever-wow-runescape/
- [31] Square Enix. 2010. *Final Fantasy XIV: Online*.
- [32] Mel Stanfill. 2019. *Exploiting Fandom: How the Media Industry Seeks to Manipulate Fans*. University of Iowa Press, Iowa City.
- [33] Anne Sullivan, Anastasia Salter, and Gillian Smith. 2018. Games crafters play. In *Proceedings of the 13th International Conference on the Foundations of Digital Games (FDG '18)*, Association for Computing Machinery, Malmö, Sweden, 1–9. DOI:https://doi.org/10.1145/3235765.3235802
- [34] Anne Sullivan and Gillian Smith. 2016. Designing craft games. *Interactions* 24, 1 (December 2016), 38–41. DOI:https://doi.org/10.1145/3019004
- [35] Taito. 2006. *Cooking Mama*.
- [36] Ubisoft. 2013. *Style Lab: Jewelry Design*.
- [37] Gergo Vas. Everything on The USS Enterprise Can Be Explored In This Stunning *Minecraft* Replica. *Kotaku*. Retrieved February 3, 2020 from https://kotaku.com/everything-on-the-uss-enterprise-can-be-explored-in-thi-472624898
- [38] 2019. Interactive farm planner for *Stardew Valley*. Retrieved February 3, 2020 from https://stardew.info/planner/
- [39] BfA Tailoring Leveling Guide 1-175 | *WoW Tailoring Guide*. Retrieved February 3, 2020 from https://www.wow-professions.com/guides/wow-tailoring-leveling-guide
- [40] *WoW Tailoring Leveling Guide 1 - 600 | World of Warcraft GamePlay Guides*. Retrieved February 3, 2020 from http://www.worldofmoudi.com/tailoring
- [41] Skills. *Stardew Valley Wiki*. Retrieved February 3, 2020 from https://stardewvalleywiki.com/Skills
- [42] *Minecraft Crafting | A Minecraft Crafting Guide*. Retrieved February 3, 2020 from https://www.minecraft-crafting.net/
- [43] Tutorials/Beginner’s guide. *Minecraft Wiki*. Retrieved June 14, 2020 from https://minecraft.gamepedia.com/Tutorials/Beginner%27s\_guide
- [44] Dye. *Minecraft Wiki*. Retrieved February 3, 2020 from https://minecraft.gamepedia.com/Dye